ARCHITECTURAL RECORD

Architectural Library
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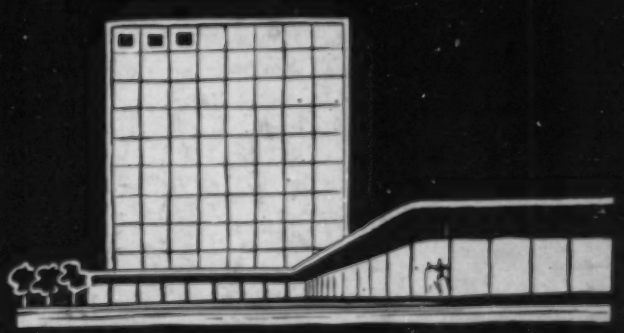


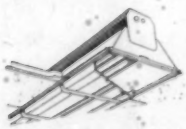
NOVEMBER 1944

DEPARTMENT STORES

Miller Troffers even solve some *old* ones!

In the fluorescent lighting of schools, stores, offices and industry . . .

Better *lighting* is only one reason for using the Miller 2-lamp 40-watt Fluorescent Troffer. It is also designed to be the most *practicable* fixture to plan *around*—and build *with*.



Troffer in position in either plaster or acoustic tile ceiling.

The patented Miller Troffer makes it possible to hang this lighting fixture from the structural ceiling—and then hang the false ceiling *from the lighting fixture!* Here's how it works in a ceiling with wood furring:

Bracket for wood ceiling.

This effects economies, assures stronger construction and adds flexibility to the entire installation. And it's just as easy to do with a ceiling using metal furring.

Bracket for metal ceiling.

In fact, so versatile is the Miller 2-lamp Troffer—in single units, unit combinations, or in continuous light strips "by the mile"—that its applications are practically as unlimited as the architect's ingenuity.

Other exclusive Miller features, developed in our 100 years of pioneering, include continuous wireway channels (just like in the Miller industrial 50 and 100 foot Candlers), hinged cover doors with plastic or glass dishes, ribbed or fluted—or prismatic glass plates—or grills of metal or plastic. These help make the Miller Troffer simple to service and so economical to operate that completely new standards of illumination become feasible.

We may seem to claim much—but we work with all light-sources (including mercury-vapor and incandescent), so our judgment is unbiased. So call in a Miller Engineer—they're in principal cities—or call us directly—and see why The Miller Company is starting its *second* hundred years, still in the lead!

THE MILLER COMPANY • MERIDEN, CONNECTICUT

ILLUMINATING DIVISION
Fluorescent, Incandescent
Mercury Lighting Equipment

OIL GOODS DIVISION
Domestic Oil Burners
and Liquid Fuel Devices

ROLLING MILL DIVISION
Phosphor Bronze and Brass
in Sheets, Strips and Rolls

WAR CONTRACTS DIVISION
War Materiel

MILLER
SINCE 1844

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ARCHITECTURAL RECORD

COMBINED WITH AMERICAN ARCHITECT AND ARCHITECTURE

VOL. 96 **NOVEMBER • 1944** NO. 5

Illustration by Francis X. Gina

PLAN NOW—WITH ASSURANCE 61
An Editorial . . . by Kenneth K. Stowell

A STATEMENT ON POSTWAR BUILDING MATERIALS AND DESIGN 62
By the Technical Committee of The Producers' Council, Inc.

HOUSES 64

Residence for Mr. and Mrs. W. H. DeGraaff, Portland, Ore. Van Evera Bailey, Architect 64

Proposed Residence for Mr. and Mrs. Jess Hartman, Allison Island, Miami Beach, Fla. Igor B. Polevitzky, Architect 68

Postwar Residence for Mr. P. V. Burns, Fort Lauderdale, Fla., Igor B. Polevitzky, Architect 70

Postwar Designs for the Northwest. George Wellington Stoddard, Architect 71

House Design for the Mass Market. By Randolph Evans 74

Suburban Residence for Mr. and Mrs. Henry Feldman, Portland, Ore. Herman Brookman, Architect 80

House for Dr. and Mrs. Laurence Selling, Portland, Ore. Herman Brookman, Architect 82

CURTISS WRIGHT AIRCRAFT PLANT 84
Columbus, Ohio. Albert Kahn Associated Architects and Engineers, Inc. Darin and Armstrong Co., General Contractors

BUILDING TYPES STUDY No. 95 . . DEPARTMENT STORES 90

WHERE ARE DEPARTMENT STORES GOING? 91
By Kenneth C. Welch

DEPARTMENT STORE AIR CONDITIONING 97
By Alfred L. Jaros, Jr.

FOR A RURAL CENTER NEAR THE BIG CITY 98
Department Store, Petaluma, Cal. Hertzka and Knowles, Architects

OPEN DISPLAY BEHIND AN OPEN FRONT 100
Men's Clothing Department of a Store in Brooklyn. Morris Lapidus, Architect

THE LIGHTING OF MERCHANDISE 102

MERCHANDISING WITH LIGHT 104
By Stanley S. McCandless

VERTICAL TRANSPORTATION AXIOMS 107

TIME-SAVER STANDARDS 109
Department Store Elevators and Escalators

THE RECORD REPORTS . . . News from the Field 7

FOR BETTER BUILDING 20
News of materials, equipment and methods

REQUIRED READING 112

INDEX TO ADVERTISEMENTS 186

W. JUDD PAYNE, Vice-President in charge of Magazine Division

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Flush Valve Application Data

INDUSTRIAL PLANTS

Compiled by the manufacturers of Watrous Flush Valves

Architects Indicate Preferences in Poll on Flush Valves for Industrial Plants

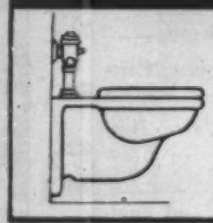
To obtain a reliable answer to the question, "What are the most suitable types of flush valves for industrial plants?", Watrous recently sent a special ballot sheet to a list of architects. Replies came from architects who do a tremendous amount of industrial plant designing.

This study, we believe, will be of considerable value in connection with present postwar planning. If you have any further thoughts on this subject, we shall be pleased to hear from you and to add your selections to the results summarized below.

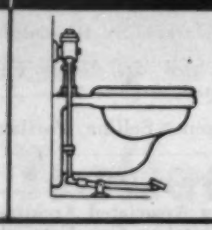
Flush Valve Combinations for Closet Bowls

Votes were cast on the question: "Which combinations do you believe offer the most advantages for use in postwar industrial plants?"

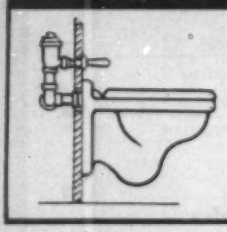
1st choice — LOW TOP SPUD — Preferred by 27%



2nd choice — FOOT-LEVER TYPE — Preferred by 20%



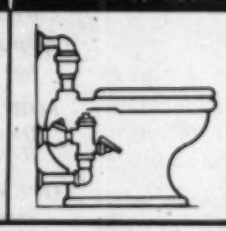
3rd choice — CONCEALED — Preferred by 16%



4th choice — HIGH TOP SPUD — Preferred by 14%

5th choice — SEAT ACTION — Preferred by 13%

6th choice — FOOT-OPERATED — Preferred by 10%

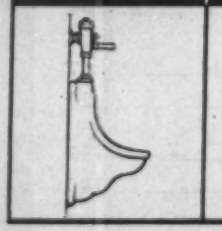


Choice on Silent-Action Combinations

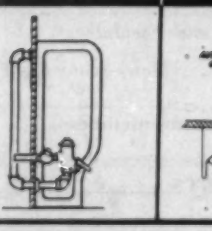
Results show that **88%** of architects agreed that office washrooms should have "silent-action" flush valves . . . while conversely **91%** voted for the "regular" flush valves for factory washrooms.

Flush Valve Combinations for Urinals

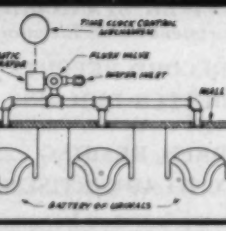
1st choice — EXPOSED — Preferred by 30%



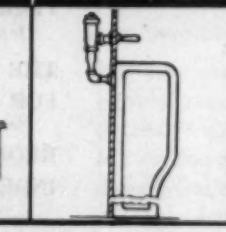
2nd choice — FOOT-OPERATED — Preferred by 29%



3rd choice — AUTOMATIC OPERATION — Preferred by 27%



4th choice — CONCEALED — Preferred by 14%



Catalog 448-A covers Watrous Flush Valves for essential wartime applications and the complete line of models and combinations for postwar planning. Or see Sweet's Catalog File.

THE IMPERIAL BRASS MFG. COMPANY, 1240 West Harrison Street, Chicago 7, Illinois

Watrous Flush Valves

THE RECORD REPORTS

WPB's Construction Bureau Established • Veterans' Housing Market • Lumber Supply • Other Supply Items NHA Controls • Community Memorials and Airports

To set up a centralized point of control for all construction industry matters within WPB, a new Construction Bureau is at last being established. This bureau is responsible to Hiland G. Batcheller, Operations Vice-chairman.

A Construction Bureau precisely fits the ideas of WPB Chairman, J. A. Krug, on how to revamp his agency to deal with reconversion. In time there probably will be other bureaus to cover other industries—aircraft, perhaps, and automobiles.

The new bureau will be headed by Arthur J. McComb, who has been serving as director of the Office of Industry Advisory Committees. While not technically a builder or contractor, McComb is credited, by those who long have known him, with a detailed understanding of the industry. He came to WPB in June, 1944 from Otis Elevator Company, where he was vice president in charge of sales. McComb's assignment is to prepare for reconversion by seeing to it that building equipment is manufactured and made available before building starts. His more immediate task, like that of any new administrator, is to find out what power he has, and to build his organization.

Nature of New Bureau

The Construction Bureau is the organization with which the industry may be dealing for a long time. It is described in an administrative order, signed by J. A. Krug, which states that it comprises: Office of the Director, Bureau Requirements Committee, Administrative Section, Program Section, Facilities Review Section, Building Materials Division, Plumbing and Heating Division, and Construction Machinery Division.

These segments are being put together from the Facilities Bureau (which is being abolished) and from other units that are being dismantled gradually. From the Facilities Bureau are taken the old Materials Control Division, the Tax Amortization Branch, the Project Analysis Branch, and several others. From the Consumers Hard Goods Bureau come the Building Materials Division and the Plumbing and Heating Division. The Construction Machinery Division was taken from the Equipment Bureau.

For the present, McComb must investigate what all these units do and then decide which of their staffs and records he wants to shift to his own bailiwick. What he doesn't take goes to WPB's equivalent of Archives, the Historical Records Section. Krug's order which outlined the geography, so to speak, of the Construction Bureau was silent about its functions. But in press conferences and elsewhere, Krug indicated that McComb would sit in at the top WPB sessions at which key materials are divided among Army, Navy and others.

Claimant for Materials

For the first time, construction will be a claimant for materials dealing directly with other claimants. McComb's Bureau will examine the WPB orders which limit or forbid the manufacture of countless items of building equipment, fighting to have their production restored. Finally, advice of the Bureau is supposed to be asked in deciding which war orders to cancel: the Bureau's job is to secure the release, after V-E Day, of plants which can turn out such equipment. While all this was hinted by top officials of WPB, the order defining McComb's job is hard to draft.

How It Will Work

A manufacturer or contractor seeking approval of a building project will, as formerly, go to the WPB operating division that has jurisdiction in his particular field. The responsibility of these divisions for sponsorship of projects remains, but the Bureau will provide a means through which the prospective builder can have all aspects of his project handled in one place, eliminating the necessity of dealing with a number of separate WPB divisions.

Meanwhile, the trade associations which worked toward the creation of the Bureau are campaigning to amend L-41 immediately to permit any building that does not positively interfere with the war instead of allowing only that which is a definite contribution. But L-41 is based upon an old agreement with the Army and Navy. For WPB to scrap it unilaterally would be to invite retaliation. Army and Navy spokesmen say that their minds are not closed on the subject but that now is not the time.

Most Washington opinion is that the Bureau will have hard days. It is not merely the matter of getting started which, after all, has been done successfully by countless bureaus. Washington expects that in housing and other construction supply and demand will be badly out of place, not only up to and immediately after V-E Day, but longer.

(Continued on page 9)

"Dammit, is everybody going into the housing game?!"

—Drawn for the RECORD by Alan Dunn

It's *tough* trying to sell a woman something she doesn't want!

1900 "I love the house—but why didn't you put in Electric Lights?"

Ever try to "sell" your wife on the hat that *you* like—instead of the one *she* wants? Well, it's just as hard to sell the modern woman away from the cleanliness, convenience, economy and safety of a modern *electric* range! Make no mistake—women *want to cook electrically* now-a-days!

HERE ARE THE FACTS!

In 1941, ten times as many consumers demanded Electric Ranges as in 1933. The trend is rapidly towards Electric Cooking.

Many surveys show that from 1.7 to 2.7 times as many women intend to buy Electric Ranges as now own them. Among these are surveys made by:

- OFFICE OF CIVILIAN REQUIREMENTS
- CHICAGO TRIBUNE
- HOUSEHOLD MAGAZINE
- THE J. WALTER THOMPSON COMPANY

The additional cost of wiring for an Electric Range *adds less than 12¢ a month* to payments on a 20-year F.H.A. loan! Get the details—now! Write for the FREE booklet, "WIRE AHEAD." Address:

ELECTRIC RANGE SECTION
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
155 East 44th Street, New York 17, New York

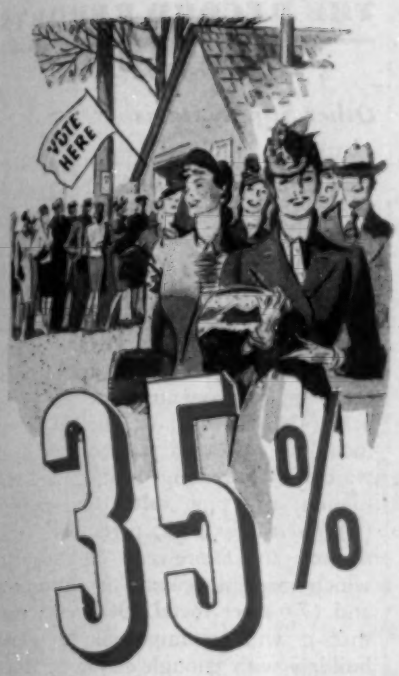
194X "I love the house — but why didn't you wire it for an Electric Range?"

A-B STOVES · ADMIRAL · ELECTROMASTER · ESTATE · FRIGIDAIRE · GENERAL ELECTRIC · GIBSON
HOTPOINT · KELVINATOR · MONARCH · NORGE · QUALITY · UNIVERSAL · WESTINGHOUSE

THE RANGE SERVICE OUTLET

A SYMBOL OF THE MODERN POST-WAR HOME

FOR EASIER SALES
wire your houses
FOR ELECTRIC RANGES



Have Already Voted For

Electric

WATER HEATERS!

Don't overlook this important *fact:* 35% of today's home owners intend to buy an *electric* water heater! This has been established — *this year* — in an extensive survey made for the National Electrical Manufacturers Association.

It makes good sense, too! Because the *electric* water heater is

SAFE—Flameless, fumeless

CLEAN—Smokeless, sootless

EASILY INSTALLED—Requires no flues, vents or lengthy hot water pipes.

TROUBLE FREE as electric lights!

So be sure to install *electric* water heaters in all the homes *you* build. You'll be giving home owners and builders what they *want!*

ELECTRIC WATER HEATER SECTION
NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

CLARK • ELECTROMASTER • FRIGIDAIRE • GENERAL ELECTRIC • HOTPOINT • HOTSTREAM • KELVINATOR MONARCH • NORGE • PEMCO • REX • RHEEM • SELECTRIC • THERMOGRAY • THERMO-WATT • UNIVERSAL • WESTINGHOUSE

A House Wired For An ELECTRIC RANGE Is Already

wired

for an

Electric

WATER HEATER!

THE RECORD REPORTS

(Continued from page 7)

Veterans' Market

On the demand side, veterans are expected to become major buyers in the low and moderate price ranges. The regulations by the Veterans' Administration to govern guaranteed housing loans, it is felt, suit the most aggressive lenders on real estate and the speculative builders. More than one million soldiers and sailors have been discharged already and many thousands return to civilian life month after month. Immediately, WPB is giving priorities assistance to building for veterans. The removal of various wartime building restrictions by NHA and WPB are expected to apply primarily to veterans.

The loan regulations provide for, but do not especially encourage, construction loans to veterans themselves. The prospect of selling homes to veterans who will be able to get 20-year loans up to the full cost of their homes at 4 per cent interest is expected to inspire contractors who will be able to arrange their own initial financing.

Mortgage Effects

As to the loan arrangements themselves, the Veterans' Administration has been dickering, since the GI Bill was passed, over whether it was to share losses on sour loans equally with lenders or whether, on the contrary, it was to take the first loss up to the amount insured. The lenders won on that point. Some of the lenders also wanted the Veterans' Administration to maintain as much of the guarantee as the law allowed while the mortgage was being paid off, but they got nowhere on that one. The guaranteed amount is reduced proportionately as loans are repaid. There was also an argument over how homes should be appraised. At one extreme were building and loan associations which wanted to select their own appraisers; at the other were savings banks which wanted FHA appraisal. The Administration is compiling a list of appraisers whose judgment it accepts and will assign them to jobs without consulting the lenders. Appraisal standards may be set, but the Administration would rather avoid this.

Housing Demand

Guesses in Washington, among both government officials and representatives of the industry, are that veterans' demand after V-E Day will cover from 30 to 50 per cent of the market. Many will consist of purchases from regular builders, but the Veterans' Administration gets letters from veterans' families expressing the intention to build.

Apart from the veterans' market, Office of Civilian Requirements has just completed a survey of families' plans for building or buying after materials and labor are available. First question was whether "you would buy or build a new house right away," could it be done. Replies indicated that 3,700,000 families are more or less in the market. But most of those who replied had reservations of one kind or another, so that OCR allows the wide gap between 800,000 and 3,700,000 in figuring "firm demand."

One finding is that firm demand for new housing is greatest, proportionately, in small communities and, indeed, declines as communities increase in population. It is greatest in communities of fewer than 25,000 and least in those with more than 100,000. To some extent small community demand includes suburbs. Presumably, however, much of the metropolitan demand will be for rented houses and apartments. OCR found that most of those planning to own their own homes expect to pay prices that they can afford.

Lumber Supply

Capacity to build still appears more doubtful, after V-E Day, than the desire. The position of lumber is especially uncertain. WPB officials learn that the Army intends, after it has been victorious in Europe, to cut its take by an amount ranging from two billion to four billion feet. Given this addition to the supply of building lumber, one estimate in the Facilities Bureau is that construction can be increased from $3.5 billion per annum to $5 billion. How much additional construction can be based on that increase in available lumber depends, of course, on the kind of construction that is undertaken. The $5 billion estimate assumes that housing will lead, that road construction will be high, that public buildings, other than hospitals, will not be important and that there will be little demand for reclamation and allied projects. The assumptions are based on figures on which WPB statisticians say they would want betting odds.

The addition of two billion to four billion feet to the building lumber supply is not a sure thing. UNRRA, whose post V-E Day demands may be given military status, is expected to ask for more than six billion feet. Government officials are hopeful that shipments of lumber producing equipment to Russia and other countries may reduce this request.

(Continued on page 10)

We offer these ideas on floors for DEPARTMENT STORES

Standard Asphalt Tile provides an attractive, easy-to-clean floor in a variety of colors for all display areas and rest rooms. Here's a low-cost floor that, in spite of heavy traffic, keeps its good looks for years. Armstrong's Asphalt Tile resists moisture and alkali and can be used on- or below-grade, as well as on suspended floors.

Linotile (Oil-Bonded) is especially suited for the general offices. This exclusive Armstrong Floor combines distinctive appearance with high resistance to indentation and wear. It's available in a variety of marbleized colorings and sizes which offer unlimited design possibilities. Recommended for suspended floors only.

Industrial Asphalt Tile is a rugged, durable flooring for stock rooms, boiler and transformer rooms. It's nonslip, nonsparking, and fire resistant. Armstrong's Industrial Asphalt Tile is low in cost, quickly installed, easily maintained. It can be installed on suspended or on-grade floors.

Greaseproof Asphalt Tile meets the needs for a grease-resistant, oil-resistant floor for the machine room. In addition, it has all the features of Standard Asphalt Tile—including durability, ease of cleaning, economy, and resistance to moisture and alkali.

P.S. For full information about the complete line of Armstrong's Resilient Tile Floors, see Sweet's or write to Armstrong Cork Company, 2312 Duke St., Lancaster, Pa.

THE RECORD REPORTS

(Continued from page 9)

Other Supply Items

With respect to equipment other than lumber, WPB and other government agencies place considerable weight on a recent survey by the Producers' Council. Findings of the Council, which are based on questions put to manufacturers, jibe with those of surveys made by OCR. Possible bottlenecks may appear in any of these classes of components, aside from lumber: (1) millwork; (2) hollow metal, including sash and frames; (3) hardware; (4) plumbing, heating and ventilation; (5) pipe valves and fittings; (6) electric fixtures, particularly with respect to fluorescent lighting for which marked demand is anticipated; and (7) sheet metal. OCR is worried that it will be impossible to supply builders with enough elevators. It also fears that dearth of countless household appliances will make it impractical for many families to set up new homes.

There are mixed opinions in Washington on whether there will be sufficient labor for a smooth start. Even though V-E Day cancellations of war contracts are expected to throw five million workers out of jobs, many WPB and trade association men freely predict that it will be next to impossible to hire building trades men with the right skills. Some of the union men think that this is nonsense. Just as opinion is mixed on whether labor will be sufficient, so it is divided on whether there will be enough contractors with ideas and credit. NHA spokesmen say that a great many have gone out of business and that it will take time for them to set up new concerns.

NHA Controls

These issues will not come to a head immediately. True, NHA and WPB have just removed a great many restrictions on current building—floor area is no longer limited and builders may use solid, honest materials if they can get them. But the construction to take place under this dispensation must be carried out under programs set by NHA. Unless a particular job is sanctioned under such a program, it cannot be done. Programs, in turn, still are keyed to immediate supplies of materials and labor. The building that is undertaken is expected primarily to meet current veterans' demand.

NHA and WPB spokesmen, as well as most of the builders, insist that the relaxation of present controls will remain a dead letter until OPA consents

(Continued on page 118)

Don't be misled...

There'll be no Reconversion Problem in the Lumber Industry

As soon as war demands are satisfied, you'll be able to obtain lumber of pre-war quality and with the usual prompt delivery. The situation is tremendously reassuring.

There will not be a moment lost in the change-over from war to peace production. We'll simply continue to manufacture as we are today. *For war demands and civilian demands are very similar—they both call for standard sizes, grades, and items.* Instead of our product being shipped for military use, its distribution will be re-channeled to RETAIL YARDS and industrial users.

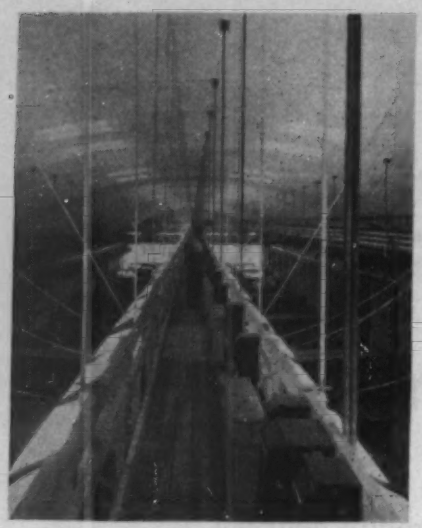
You can count on lumber of pre-war quality again — *and that was the best manufactured lumber that ever reached the American market.* It was uniformly graded, carefully machined, and properly seasoned. You can expect that quality again from Weyerhaeuser.

Millions of feet per day of well seasoned lumber will be available as soon as distribution restrictions are removed. Modern kilns are drying lumber in great volume. They accomplish in a matter of days what formerly required months.

With the return of skilled workers, with the new techniques developed in forest and mill, and with new and more efficient equipment, quality lumber production will equal normal consumer needs.

WEYERHAEUSER SALES COMPANY
SAINT PAUL 1, MINNESOTA

WEYERHAEUSER 4-SQUARE LUMBER AND SERVICES



A catwalk 1800 ft. long supports the reflector units at huge Budd factory

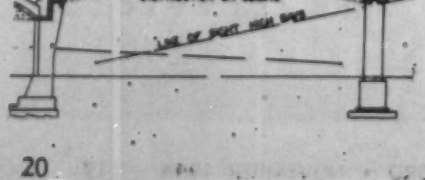
INDIRECT LIGHTING FOR HUGE FACTORY

Totally indirect lighting in a super-assembly plant, using mercury vapor lamps was described in a paper given at the annual meeting of the Illuminating Engineering Society by J. L. Kilpatrick, illuminating engineer, Westinghouse Electric and Mfg. Co., and L. N. Blugerman, Budd Assembly plant engineer. In the unusual lighting installation at the Budd plant, Bustletown, Pa., the problem was the illumination of two high bays, 135 ft. wide, 1800 ft. long and 58 ft. high, and six lower bays 50 ft. wide, 1800 ft. long and 33 ft. high which was solved by the use of mercury vapor lamps, additional incandescent lamps for better coloration, and the use of the barrel roof as a giant reflector.

The mercury and incandescent reflectors, when viewed from the floor level, appear similar, and are about 72 in. long, 18 in. high, and 22 in. wide. They are mounted on either side of a catwalk by means of a pair of bracket arms which are attached to the main channels of the catwalk structure which in turn is suspended 17 ft. down from the zenith of the larger arch and 9½ ft, from the zenith of the smaller arch. "The reflectors are adjustable and the brackets are equipped with stops so that the units can be tilted back to a servicing position and returned to the original setting . . . along a catwalk the pairs are alternately filament and mercury. In the low bays the spacing between units is 15 ft. and in the high bays the spacing is 7½ ft."

According to records of 10 months of service, the mercury lamps have operated about 5000 hours with only 7 per cent replacements for the entire period. After 10 months of operation, these lamps are producing about 75 per cent of their initial rated lumens output.

Distribution of light on arched ceiling in one of the two high bay areas



COATING MATERIAL

A new type resinous coating material that looks like varnish, withstands high temperatures and the action of most chemicals and solvents, and can be made from sugars and starches of farm crops, has been developed by the Research Administration of the Department of Agriculture.

The product, known as *allyl starch*, is prepared by treating starch with either allyl chloride or allyl bromide. When freshly prepared, allyl starch and other allyl carbohydrates are soluble in most paint and varnish solvents, which makes possible their ready application to wood, metal, paper, glass, textile and other surfaces, the Administration explains. Upon "curing," in contact with air or by application of heat, they undergo complex chemical changes that produce a hard, smooth surface which is extremely resistant to organic solvents, acids, alkalies and other corrosive agents. Properly cured coatings have withstood temperatures of 400° F. Alcohol, gasoline, acetone and other liquids spilled on the surface coated with allyl starch left no mark.

AIR DUCT

To meet wartime needs, a new type of portable air duct—flexible but non-collapsible—has been developed for either blower or exhaust systems. It is an improved "Ventube" flexible ventilating duct designed primarily for auxiliary ventilation in ship construction, loading and unloading, cleaning or repairing ships. It is suitable also for other industrial uses such as building and maintenance of vats, tanks, tank cars, boilers, or for rapidly changing air in work or drying rooms.

Non-collapsible Ventube is a sleeve or tube of standard Ventube impregnated cloth, either regular or fire resistant, with a tempered steel helical spring inside it. Thus the maximum air-flow opening is maintained, it is claimed regardless of whether the duct is bent sharply or the system is blowing or sucking air. When bent to an angle of 180° it will exhaust eight times more air than the old style tubing. E. I. du Pont de Nemours and Co. (Inc.), Wilmington 98, Del.

PLASTIC FOAM

Plastic foam weighing only one-seventh as much as cork has been developed and is being manufactured for important war uses by United States Rubber Co.

Called *Flotofoam*, the new material is very buoyant, yet is semi-rigid. Because it contains so much air space, it has good insulation and sound-deadening properties in comparison to its weight. It weighs less than 1½ lb. per cu. ft., and can be made to weigh as little as ¾ lb. per cu. ft.

Important peacetime uses foreseen by the manufacturers for the new product include insulation for homes, trains, airplanes and automobiles.

Fireplace grate suitable for hard coal

FIREPLACE GRATE

Made of cast iron with special heat-refracting lining on the back and sides, a new fireplace grate called *Vertigrate* is equipped with top doors for easy fueling and a rocker shaker for cleaning ashes. Its unusual height and narrow depth create a vertical firebed which is said to reflect from three to eight times more heat directly into the room and eliminate the usual loss of heat up the chimney.

Suitable for hard coal as well as bituminous, briquettes and coke, the new grate can be kept burning day and night over an indefinite period with as little as one refueling in 12 hours. Centre Brass Works, Inc., 2323 Haviland Ave., New York 61.

CLAY SKIP-PIPE

Designed to assure a dry cellar by providing proper outside drainage around the foundation or basement walls, a vitrified clay skip-pipe pre-

(Continued on page 22)

Allen "flies" the Dust Load out of this Foundry Building

...a Typical Assignment for Allen Engineers

When this vast building of the Clover Foundry Company at Muskegon, Michigan was originally built it was provided generously with roof ventilators. Subsequent operation and the war time urgency for pushing up production of the plant's specialty —cast iron piston rings—proved the existing ventilation inadequate to maintain a working atmosphere conducive to high operating efficiency and worker health. The Clover management turned to Allen and Allen turned to the scientific instruments that eliminate guess work and made a true psychrometric survey. Much of the former equipment came off the roof and up went six Allen Type "H" Roof Fans—four 60A units over the shake out area; one 48A unit over the sand handling equipment; and one 48A unit over the cupola floor.

Result: Atmospheric dust count was reduced to a point well within the limits necessary for the maintenance of an hygienic atmosphere. Management and working personnel were equally pleased with Allen results. Important production schedules could be maintained.

There are two reasons why industrial management in many similar cases has found it easy and profitable to work with Allen engineers. Allen men have the right attitude toward ventilating problems. They look with complete realism on the problem and are free to recommend the right gravity or power equipment to *get results* because the Allen line covers both fields. We are always willing to talk over your ventilating problem whether it is a run-of-the-mine job or a very unusual one. The Allen Corporation, 9751 Erwin Avenue, Detroit 13, Michigan.

THE *Allen* CORPORATION

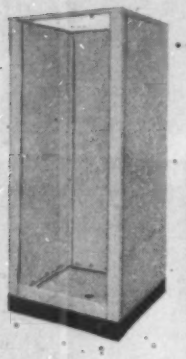
ENGINEERED VENTILATION FOR INDUSTRY

A step forward . . .

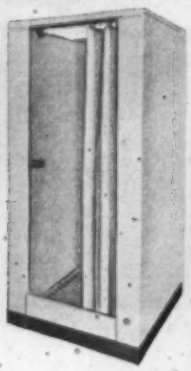
STANDARDIZATION

OF SHOWER CABINET AND GLASS DOOR SIZES

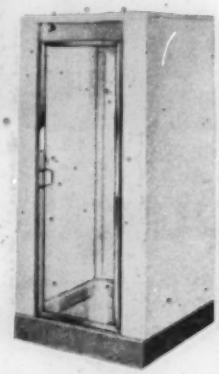
The standardization of shower cabinet and glass door sizes announced by Fiat marks a step forward in the industry that will be of definite benefit to the architect, builder, jobber and plumber. Standardization will expedite bathroom planning, make possible bigger values in showers, simplify jobbers stocks, and promote uniformity in installation methods. Fiat showers are classified into four groups with six basic sizes.



. . . GROUP NO. 1
Skipper type, low cost showers
32 x 32 x 76



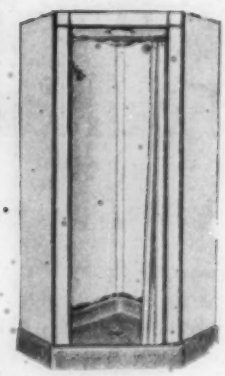
. . . GROUP NO. 2
Cadet type, medium priced showers
32 x 32 x 80
36 x 36 x 80
36 x 36 x 80 (corner)



. . . GROUP NO. 3
Marine, Ensign type, for "above average" installations
32 x 32 x 80
36 x 36 x 80
40 x 40 x 80 (corner)

Measurements conform to the American Institute of Architects 4" unit module system.

Glass Shower Doors
One standard size—
24 x 72



GROUP NO. 4.....
Admiral type, de luxe class
32 x 32 x 80
36 x 36 x 80
40 x 36 x 80
36 x 40 x 80
40 x 40 x 80 (corner)

AVAILABLE FOR DELIVERY NOW

NO. 85—Recommended for homes, clubs, hospitals or public buildings. Size 36 x 36 x 78. Deep type receptor —heavy ¼" MASONITE walls.

NO. 80 Volunteer—has remarkable strength and is easily erected. A good shower for economical installations. Size, 32 x 32 x 76 and 30 x 30 x 76.

FIAT

METAL MANUFACTURING COMPANY

1205 ROSCOE ST., CHICAGO 13, ILLINOIS
21-45 BORDEN AVE., LONG ISLAND CITY 1, NEW YORK
32 SAN GABRIEL BLVD., PASADENA 7, CALIFORNIA

(Continued from page 20)

vents seepage in two ways: (1) part of the water collects in the cradle which is the top of the pipe, and is discharged into the pipe through fixed slots at each joint; and (2) the balance of the water enters the pipe through open joints maintained by an arrangement of lugs in the bell of the pipe. Robinson Clay Product Co., Akron, Ohio.

Interior sign made of Plexiglas strips (Rohm & Haas), formed to shape and mounted on edge in cut-out background

COMPRESSED AIR PURIFIER

A new *Model A-1 Pur-O-fier* unit designed to eliminate free moisture, oil and all foreign matter with a heavier specific gravity than air from passing through the compressed air line uses positive centrifugal action as a medium for purification. It operates with from 1 to 5 cu. ft. of air, weighs 1¼ lb., and is 3⅛ in. in diameter by 5-9/16 in. deep including plastic and transparent entrainment sump. No maintenance is required on the unit other than draining the sump by opening the petcock in the bottom. Standard units have ⅛ in. female pipe connections for intake and discharge pipes. Ball-bearing equipped for smooth operation. Bird-White Co., 3120 W. Lake St., Chicago 24, Ill.

NEW STANDARDS

Prefabricated Homes

Proposed Commercial Standard, TS-3769, Prefabricated Homes, provides minimum requirements for one, one and a half, and two story prefabricated homes. It covers structural strength of the various component parts, requirements for light and ventilation, and recommended requirements for foundations, chimneys, heating, plumbing, insulation and electrical wiring. It includes general requirements for material, workmanship as provided by the manufacturer, and protection of panels and parts during transportation and erection.

The proposed standard, submitted by

(Continued on page 126)

Plan now—with assurance

◆ The advantages to the owner, to the industry, and to the public, of being ready with plans and specifications on the day building restrictions are removed, have already been pointed out. But both clients and architects have not had assurance regarding materials and equipment that can be incorporated in their plans and specifications. They now have positive assurance.

◆ ARCHITECTURAL RECORD has taken the bull by the horns and has obtained the facts from the lion's mouth (to mix metaphors completely). The producers of building materials and equipment have responded wholeheartedly and categorically to the RECORD's urgent request for the facts. Their replies bear out and verify the findings of the Technical Committee of the Producers' Council (published on the following pages). They are in accord with the facts and opinions expressed in the RECORD's editorial pages. They assure architect, engineer, and owner that plans can and should be made now, with the information now available. And the RECORD will publish the facts in the December issue, so that he who runs may read, he who reads may plan, he who plans can build.

◆ Producers state that they (with but few exceptions) will resume the production of the materials or equipment they offered before the war. Drawings now can be made and specifications written incorporating the materials and equipment with which the architect is familiar, and which he has used and found good. Many improvements are to be expected in many products but most of these will not materially affect either dimensions or specifications.

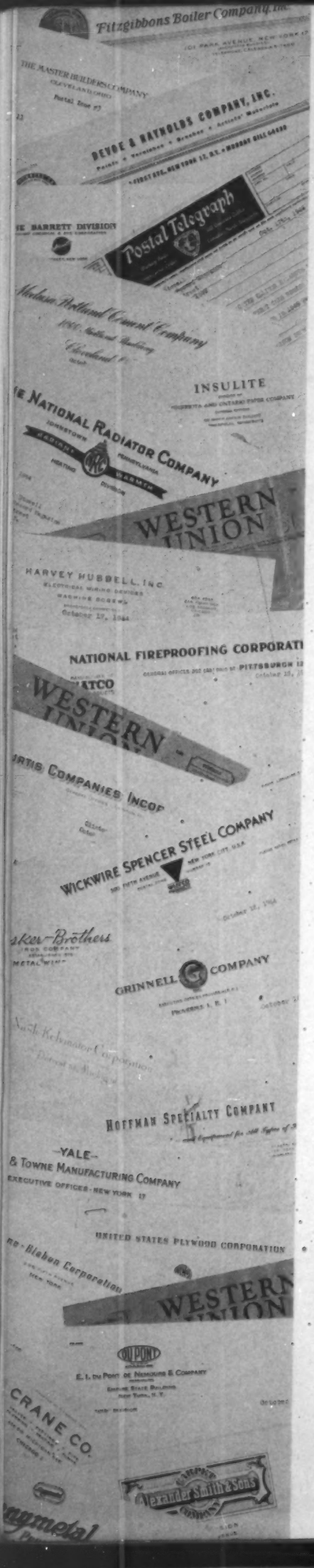
◆ Among the "exceptions," noted above, one is especially significant. More and more manufacturers will adhere to the principle of Dimensional Coordination, modular sizes, standardized dimensions, and standardized installation details. The metal window manufacturers (Metal Window Institute) are to be congratulated for being among the pioneers in achieving a boon to designers, builders and the public. By working out in detail their standardized sizes and types, coordinating them with modular sizes of masonry (Structural Clay Products Institute), and other materials, they insure flexibility, elimination of waste, higher quality, greater economy of construction, greater speed and ease of installation. The collaboration of the AIA, Producers' Council, The American Standards Association, and allied groups, is achieving practical and long-needed results through such action by the producers.

◆ New products, new devices, new principles are being developed now, as always, and some are emerging from the research stage and testing stage to production. This is the normal course of events and an acceleration of the tempo is to be expected. The new products will be announced by the manufacturers as soon as they are ready for the market. And ARCHITECTURAL RECORD will continue to present these new developments each month.

◆ Architects and engineers in planning postwar buildings now, adopting modular standards, can proceed with assurance that their plans and details will be set on V-Day, complete and ready for bids. And manufacturers now give their assurance that the products so shown and specified will be available as soon as plants, materials, and manpower can be spared from wartime tasks.

Kenneth K. Stowell

EDITOR



A STATEMENT

ON POSTWAR BUILDING

By the Technical Committee

PLANNING of buildings to be erected when present war restrictions on materials are relaxed can and should proceed vigorously with complete assurance that all prewar standard types of building materials and equipment will be available as rapidly as the respective industries can reconvert to peacetime production.

There will be no fundamentally new methods of construction and few new types of materials or equipment ready for widespread use in the several years immediately following cessation of hostilities.

Deferment of building plans to await mystery materials, "magic" houses, or major reductions in the cost of construction will deprive the owner of the advantages gained by early possession of the structure he seeks, and is likely to prove futile.

Surveys among manufacturers of building materials and equipment clearly indicate the following facts: among the structural materials (wood, masonry, reinforced concrete, and steel), and in the field of building equipment (heating, plumbing, and electric facilities) the principal developments during the war are largely technical improvement in the manufacture or fabrication of familiar products.

There will be some significant advance in the standardization of sizes (called dimensional coordination), which will tend to reduce waste and facilitate assembly; there will be an increase in the trend toward the prefabrication of parts of buildings, and some further advances in the total prefabrication of small dwellings.

There is no practical likelihood of major substitutions of plastics or new metals for standard structural materials because it takes a number of years to establish their performance characteristics, secure wide distribution, and teach building trades mechanics the techniques that are involved. These new products will appear in building accessories such as hardware, lighting fixtures and domestic equipment, or will be alternates for established products that can be used in the same manner as the materials they supersede.

MATERIALS AND DESIGN

of The Producers' Council, Inc.

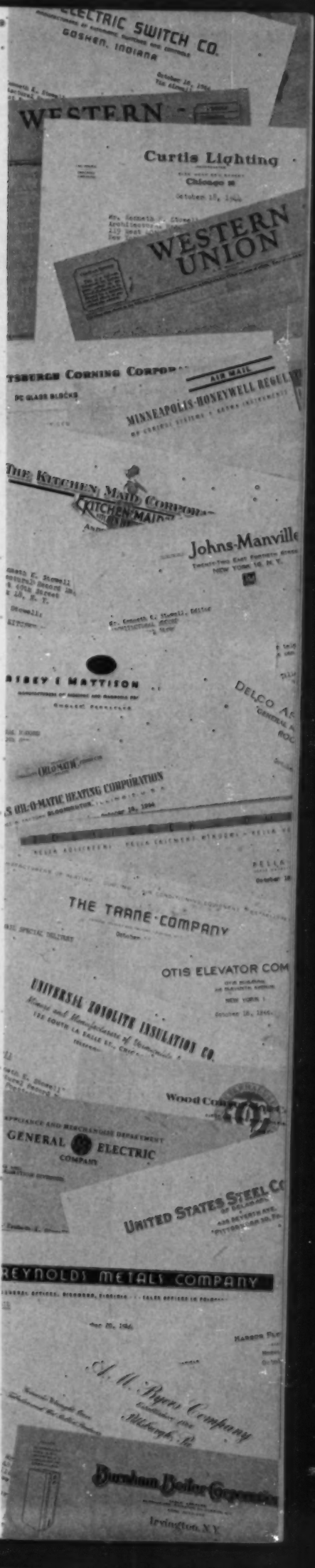
In the field of building equipment there will be new designs, new colors and finishes, and accelerating flow of technical improvements in the quality and performance of such items as ranges, refrigerators, heating and air conditioning units, and lighting. Entirely new types of equipment for home use such as food freezers and automatic laundry equipment will be on the market. Building designs need not be revolutionized to utilize these new types of equipment. Building plans can be made now, based on available data, that will permit their use as rapidly as they come on the market.

Finishes also will be improved through advanced knowledge of the chemistry of paints and the synthetic resins, and since these materials are in production for war uses, their immediate supply can be anticipated.

The cost of building construction following the war may be expected to rise over prewar levels in proportion to the general price level. The building industry has not been benefited nor its progress advanced materially by war programs except in specialized types of military and industrial structures. On the contrary, building activity has been restricted and has reached its lowest level for more than two decades. It will require time, ranging from one to possibly five years, to re-train labor and to secure the benefits of improved manufacturing and assembly methods which have been devised by forward-looking planners, and for the average builder throughout the country to convert these advances into substantial cost reductions for building owners.

Houses, schools, office buildings and industrial structures erected immediately after the war will nevertheless be better buildings than their predecessors through advanced design and through the accumulation of many small improvements which collectively will make the new structures more livable, more comfortable, more economical to own and operate, and better long-range investments. Their style and appearance will change to the degree that the public accepts the leadership of advanced designers.

Tyler Stewart Rogers, Chairman



MERELY A MATTER OF VIEWPOINT

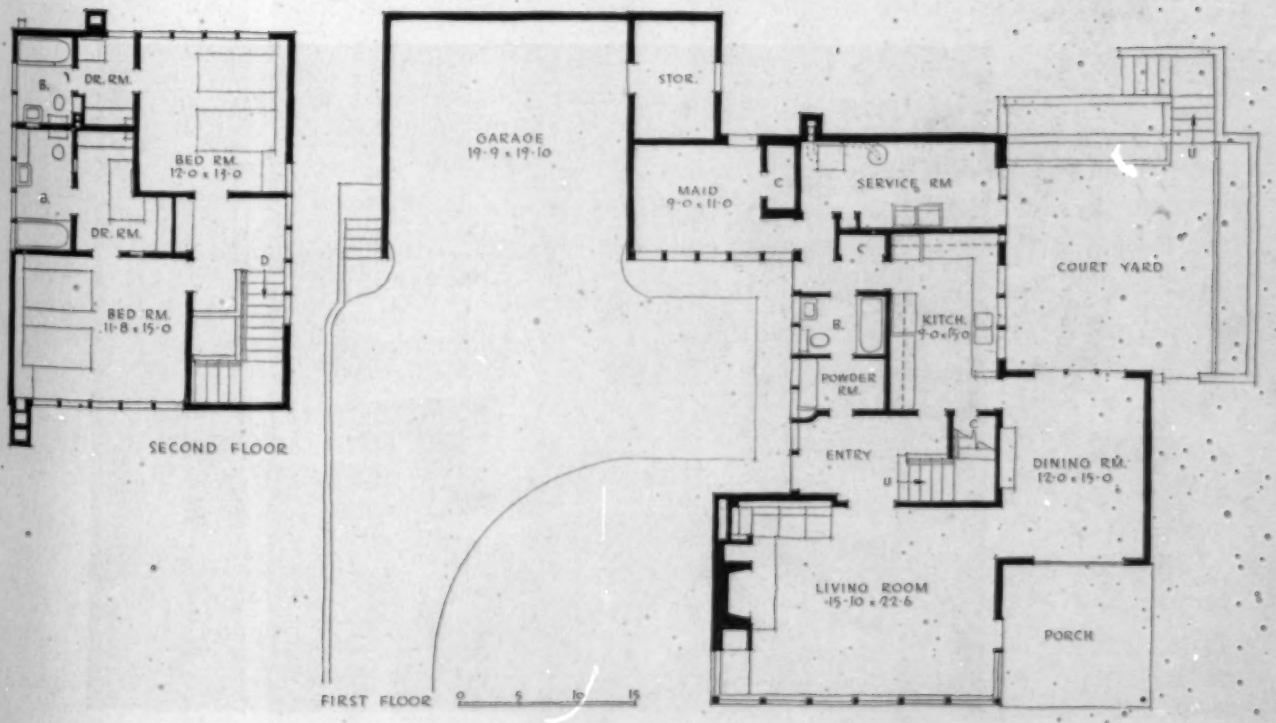
Residence for Mr. and Mrs. W. H. DeGraaff, Portland, Oregon

Van Evera Bailey, Architect

THE OWNERS of this house, an elderly couple from Holland, have been interested in American reactions to it. With their European background, they consider it conservative, and express surprise at the traditional styles of Portland. So they especially noted comments on their own house, and have been pleased to number some twenty parties who have expressed a desire to buy it, should it become available.

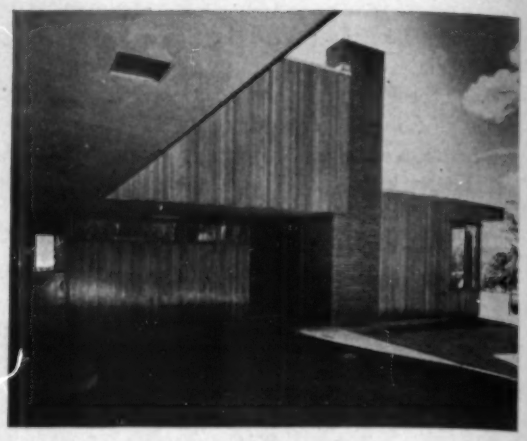
The plan, which faithfully develops the owners' requirements, was more than ordinarily affected by site considerations. The lot being narrow and the driveway long, a background space was necessary. To provide the space, it was logical to narrow the plan in the center, to combine entrances in this area, thus gaining complete privacy on the other side of the house, where southern exposure and extensive views warranted especial attention. The court yard to the rear of the dining room is brick-paved and enclosed with low brick walls, and both court

P. A. Dearborn photos



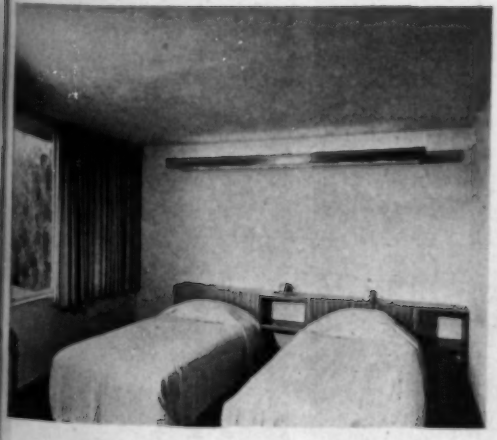
and covered porch are screened at the lot line by a row of evergreens. The dining room has a solid wall toward the adjoining house, while the side with a view over a golf course and the rear, toward the dining terrace, have practically solid fenestration.

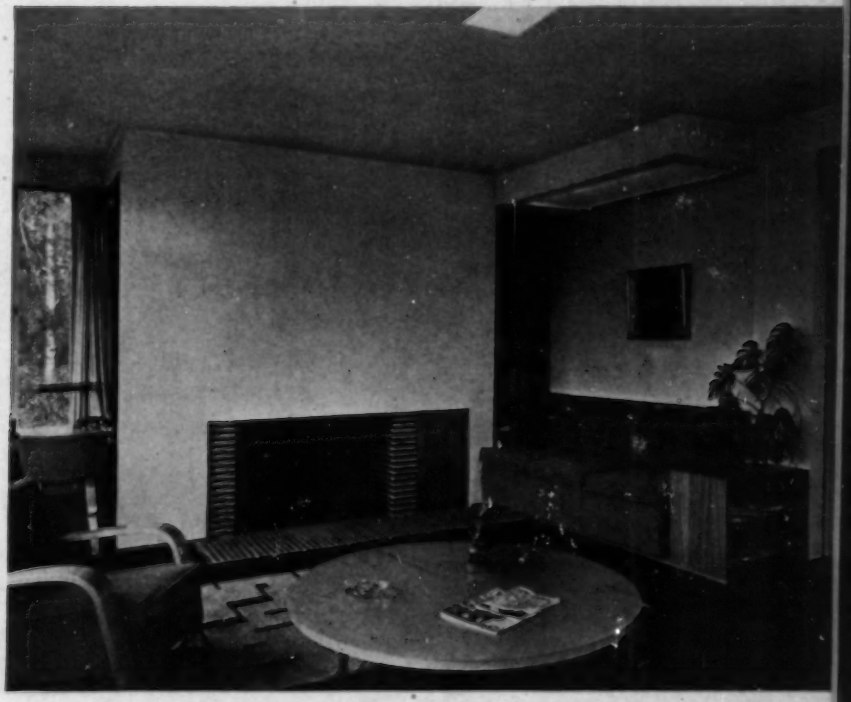
Exterior throughout is of cedar, with spar varnish finish. The siding is cedar "flooring," used vertically. Brick of the chimney are thin Roman-type common red brick, laid with white joints. Interior finishes throughout are natural Philippine mahogany, white painted plaster walls and ceilings, and floors are covered with black hair-felt carpeting. All light fixtures are built in, flush.



The necessary turn-around drive was developed into a covered, double-entrance area (above) permitting complete privacy on the dining room side of the lot for sunny, paved dining terrace

Two views of the living room, done in white plaster walls and ceilings, and block carpeted floors. Curtains are white "homespun," hung on built-in track





Except for some Alto chairs, furniture was designed by the architect. Built-ins are Philippine mahogany, others birch, maple

FOUR STAGES OF INDOOR-OUTDOOR LIVING

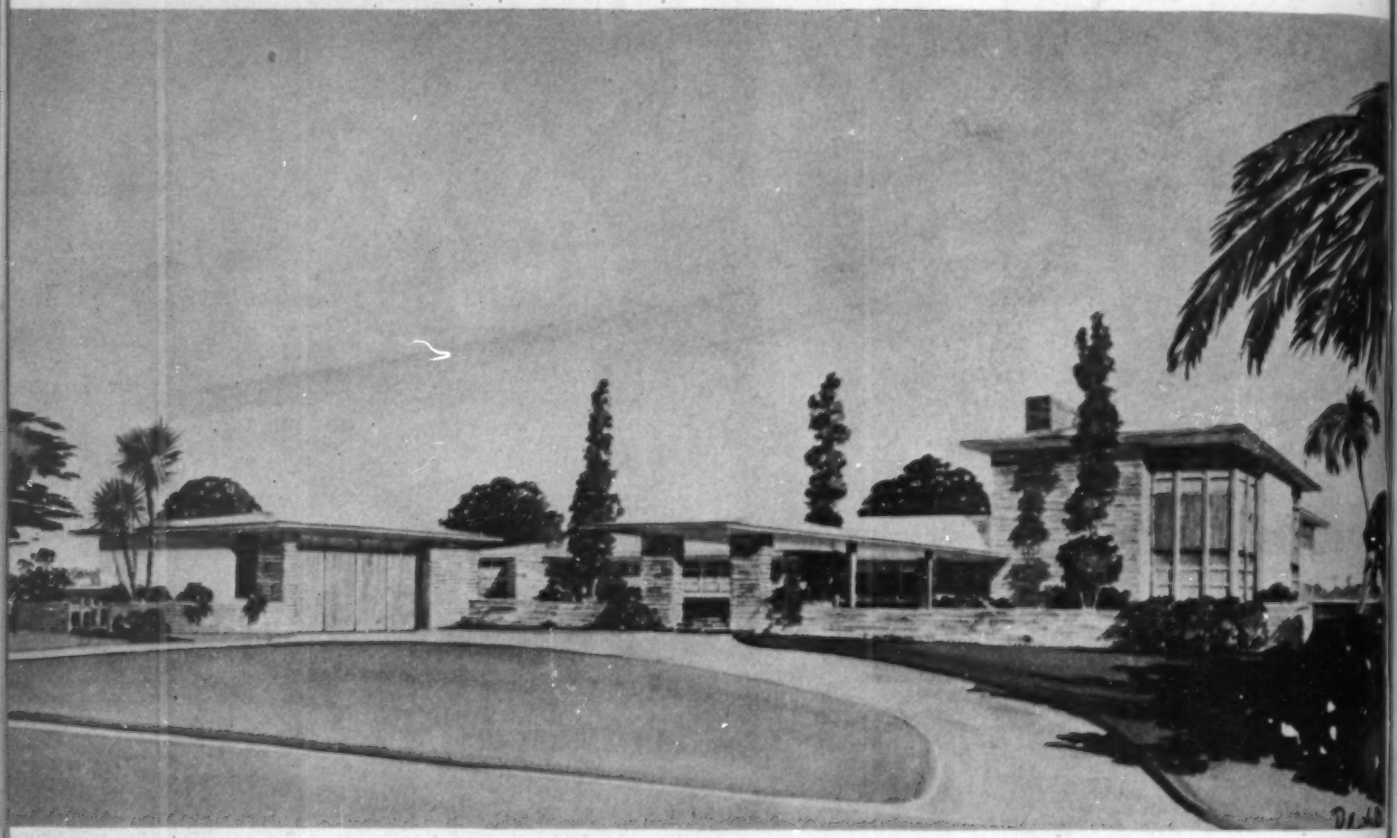
Proposed Residence for

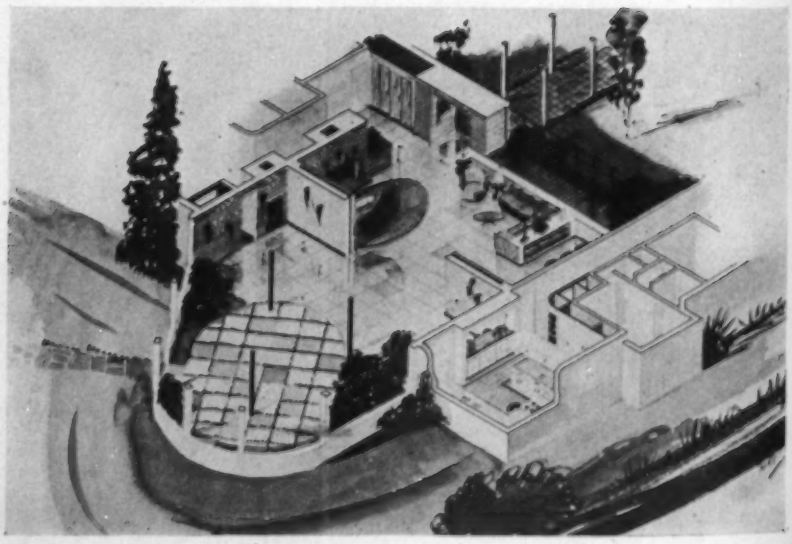
Mr. and Mrs. Jess Hartman

Allison Island, Miami Beach, Fla.

Igor B. Polevitzky, Architect

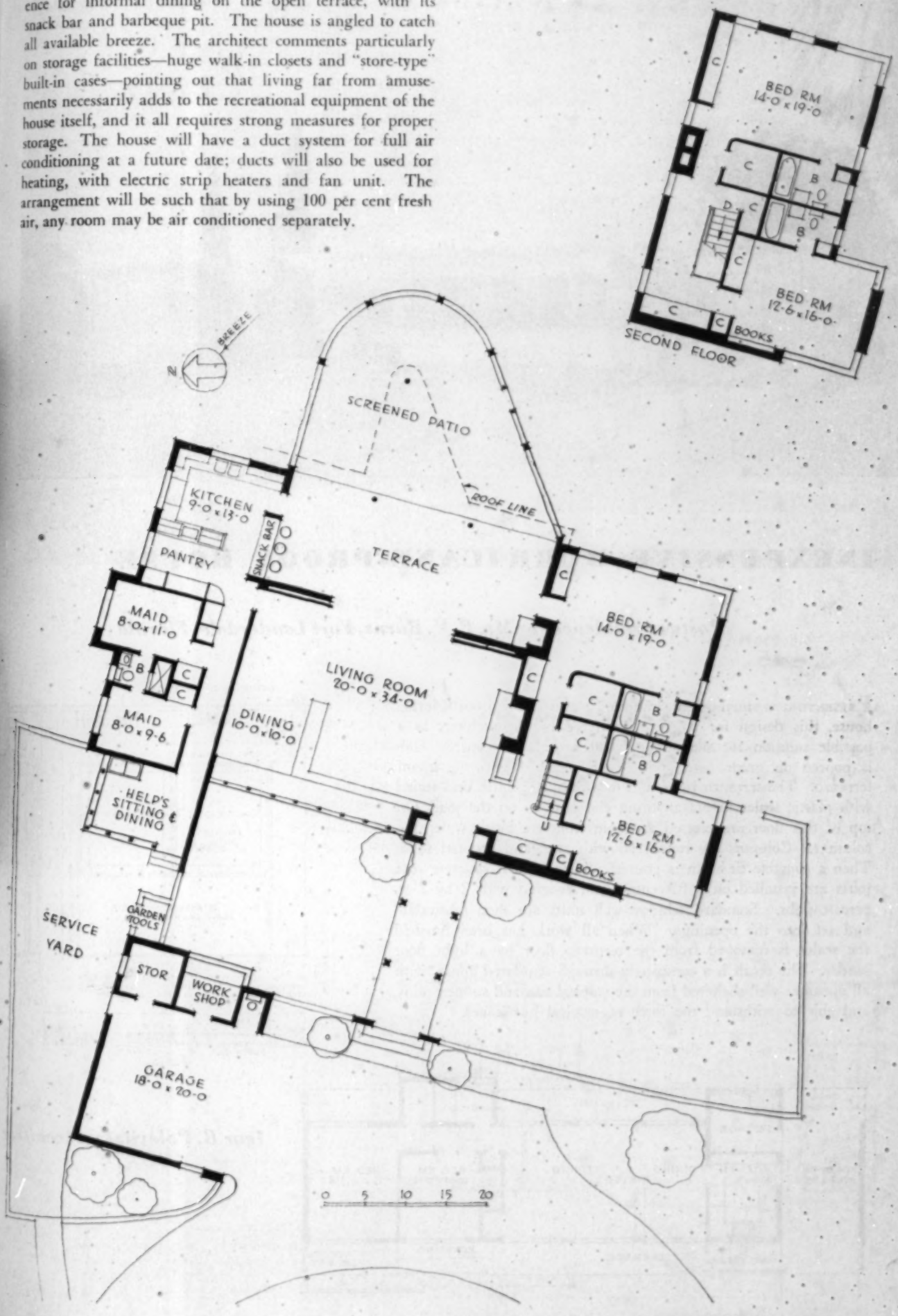
PLANNED for the indoor-outdoor living that will certainly be no less typical of Florida after the war, this house is designed for a graduation of the living areas from complete shelter to complete outdoors. Large sliding doors open the living room to the enclosed terrace, which in turn opens to an irregular-shaped screened patio extending beyond the house. The kitchen location indicates a prefer-

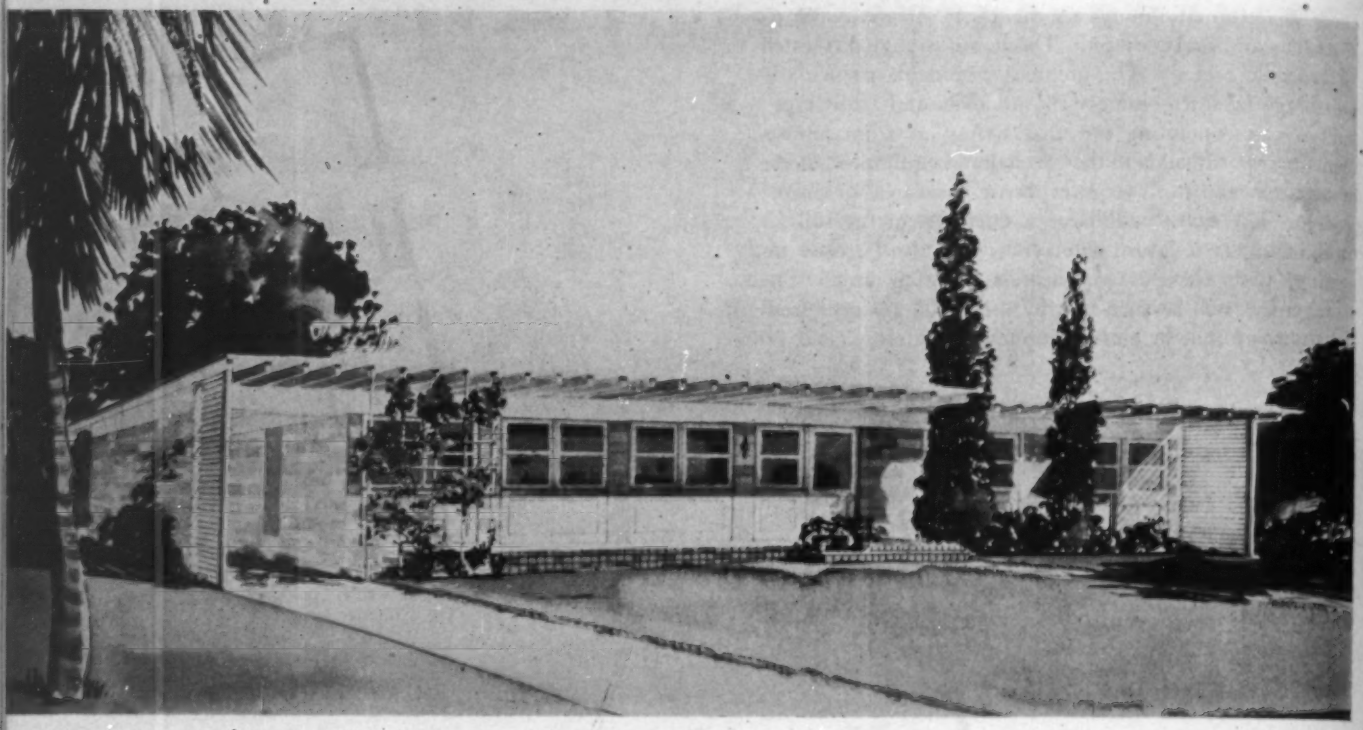




Isometric view of four-stage indoor-outdoor living area, comprising: (1) outdoors; (2) screened porch; (3) covered dining terrace; (4) living room with sliding doors opening onto the terrace

ence for informal dining on the open terrace, with its snack bar and barbeque pit. The house is angled to catch all available breeze. The architect comments particularly on storage facilities—huge walk-in closets and "store-type" built-in cases—pointing out that living far from amusements necessarily adds to the recreational equipment of the house itself, and it all requires strong measures for proper storage. The house will have a duct system for full air conditioning at a future date; ducts will also be used for heating, with electric strip heaters and fan unit. The arrangement will be such that by using 100 per cent fresh air, any room may be air conditioned separately.

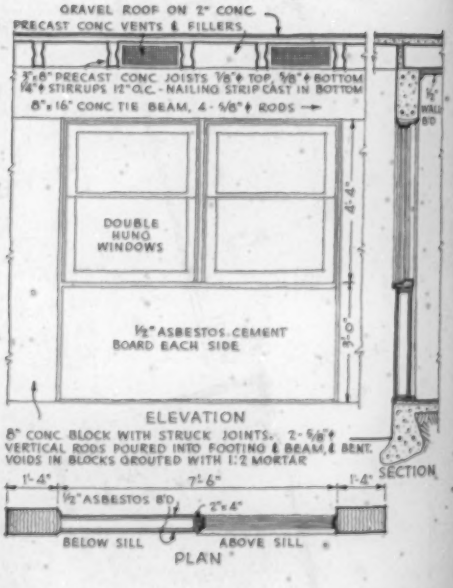


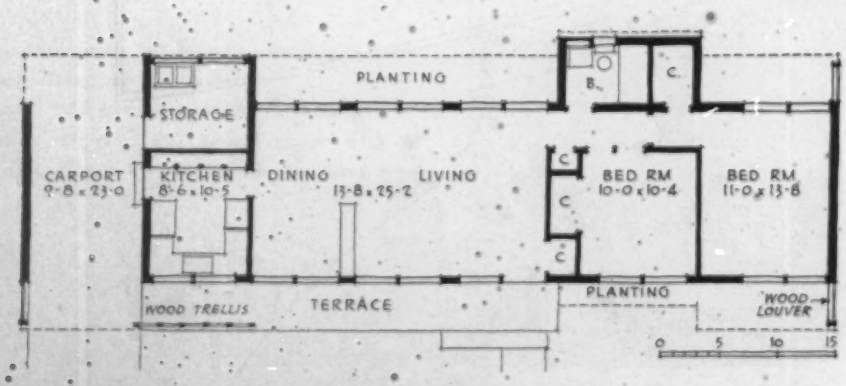


INEXPENSIVE HURRICANE-PROOF HOUSE

Postwar residence for Mr. P. V. Burns, Fort Lauderdale, Florida

PRESENTING a method of building a hurricane-proof Florida house, this design for postwar is offered by the architect as a possible solution for the under-$5,000 house. A concrete slab is poured on grade, and is integrally finished with ½ in. of terrazzo. The terrazzo is ground to a complete finish and sealed with plastic sealer before anything else is done on the job. On top of this floor are erected the 8 in. concrete block walls and columns. Columns are reinforced with steel and grouted solid. Then a concrete tie-beam is poured. Then precast concrete roof joists are installed on 2 ft. centers and covered with 2 by 2 ft. precast slabs. Standard window-wall units are shop fabricated, and set into the openings. When all work has been finished the sealer is removed from the terrazzo floor by a light floor sander. The result is a completely through-ventilated house, with all openings well sheltered from the tropical sun and sudden rains, and able to withstand the force of tropical hurricanes.


GRAVEL ROOF ON 2" CONC.
PRECAST CONC. VENTS & FILLERS
3"x8" PRECAST CONC. JOISTS 1/8"ϕ TOP, 5/8"ϕ BOTTOM
1/4"ϕ STIRRUPS 12" O.C. - NAILING STRIP CAST IN BOTTOM
8"x16" CONC. TIE BEAM, 4 - 5/8"ϕ RODS
DOUBLE HUNG WINDOWS
½" ASBESTOS CEMENT BOARD EACH SIDE
ELEVATION
8" CONC. BLOCK WITH STRUCK JOINTS. 2 - 5/8"ϕ VERTICAL RODS POURED INTO FOOTING & BEAM, & BENT. VOIDS IN BLOCKS GROUTED WITH 1:2 MORTAR
SECTION
½" ASBESTOS BD.
2"x4"
BELOW SILL
ABOVE SILL
PLAN



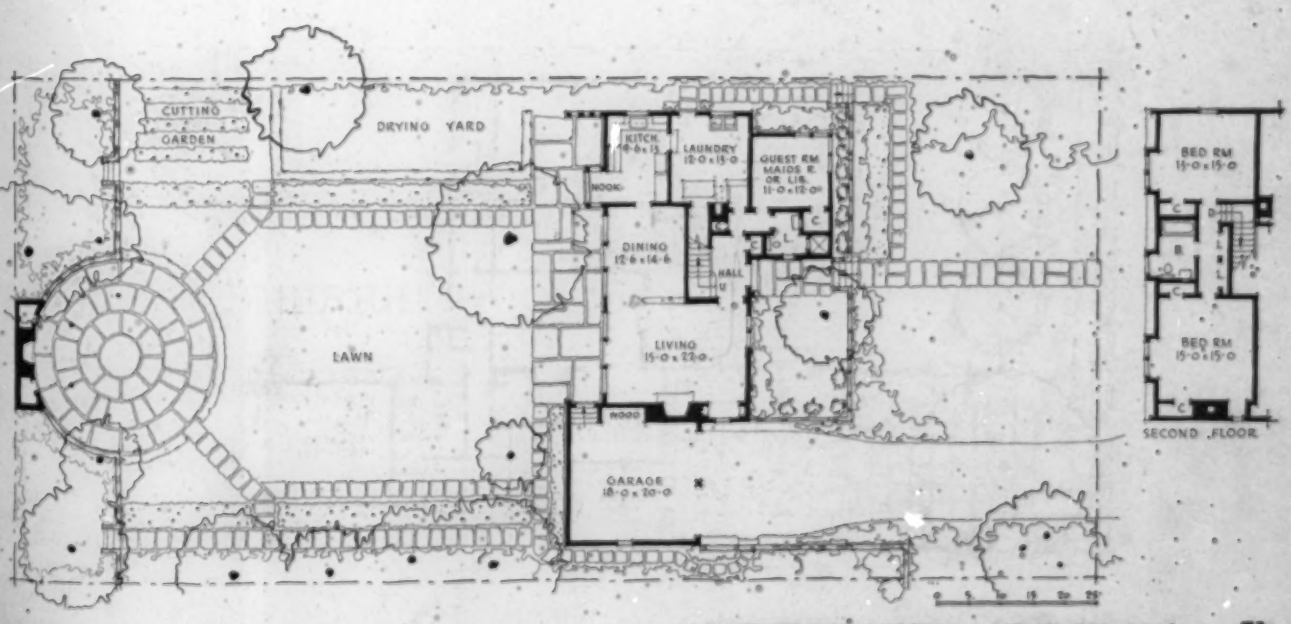
Igor B. Polevitzky, Architect

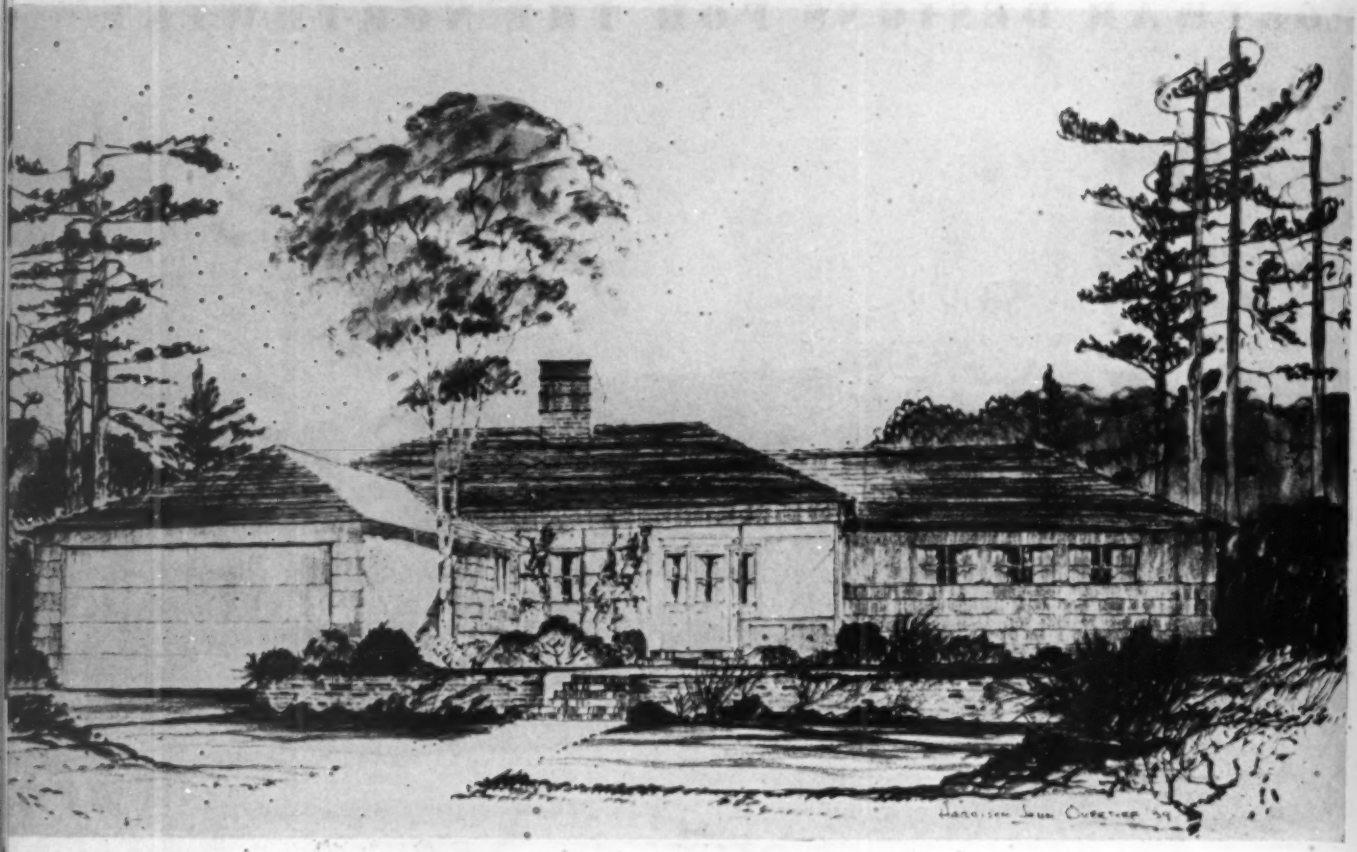
POSTWAR DESIGNS FOR THE NORTHWEST

George Wellington Stoddard, Architect

I.

FROM the postwar house plans so far seen it would appear evident that there will be a trend toward increasing development of the outdoor living idea. Here are three designs for the Pacific Northwest, differing from the foregoing Florida plans in this respect not in basic idea but in adaptation to locality. All of these three are planned for the neighborhood of Seattle, Washington, thus the outdoor living concept includes extensive provision for gardening, as well as development of distant views. In all three cases living



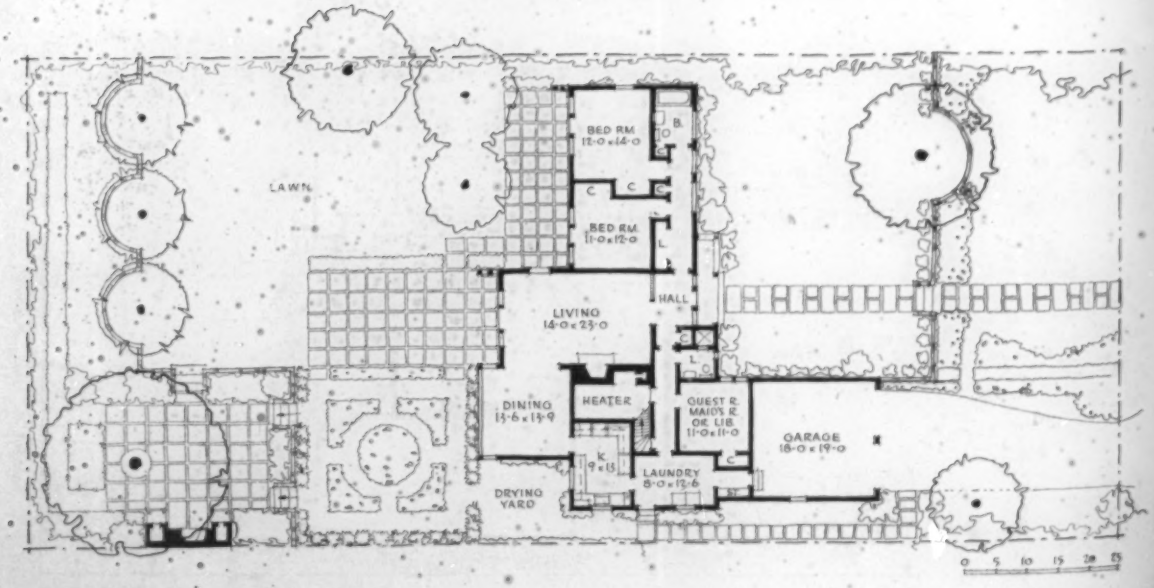


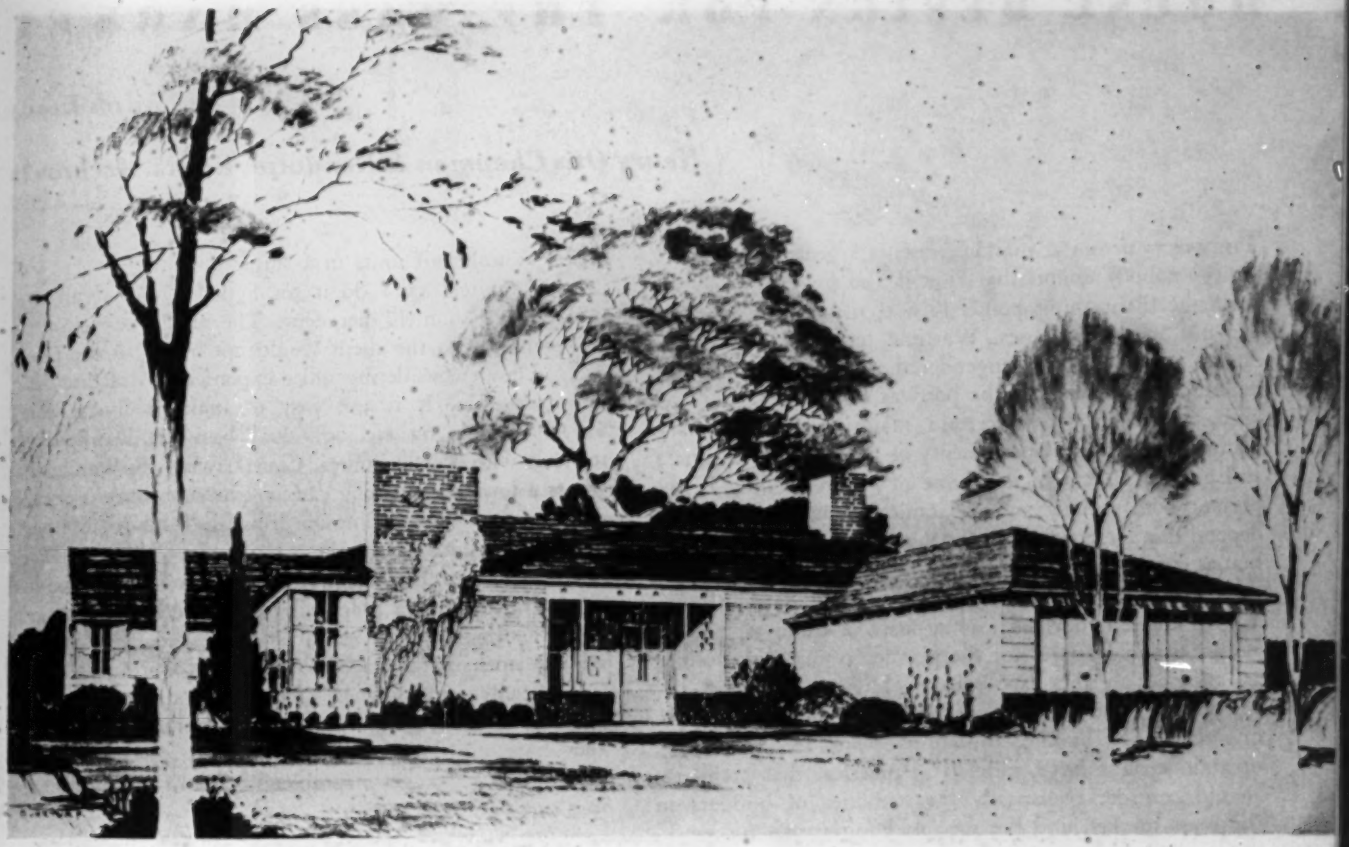
POSTWAR DESIGNS FOR THE NORTHWEST

2.

room, dining room and main sleeping rooms face on informal lawn and garden areas. For the sake of privacy these lawn and garden areas are placed in the rear of the plots, and shrubbery borders are extensively used in the landscaping schemes to further safeguard privacy. Postwar living in the Northwest obviously contemplates outdoor meals; it is interesting to note that here the barbecue pits are at some distance from the house — primarily for picnics.

For what significance three individual plans may have in pointing





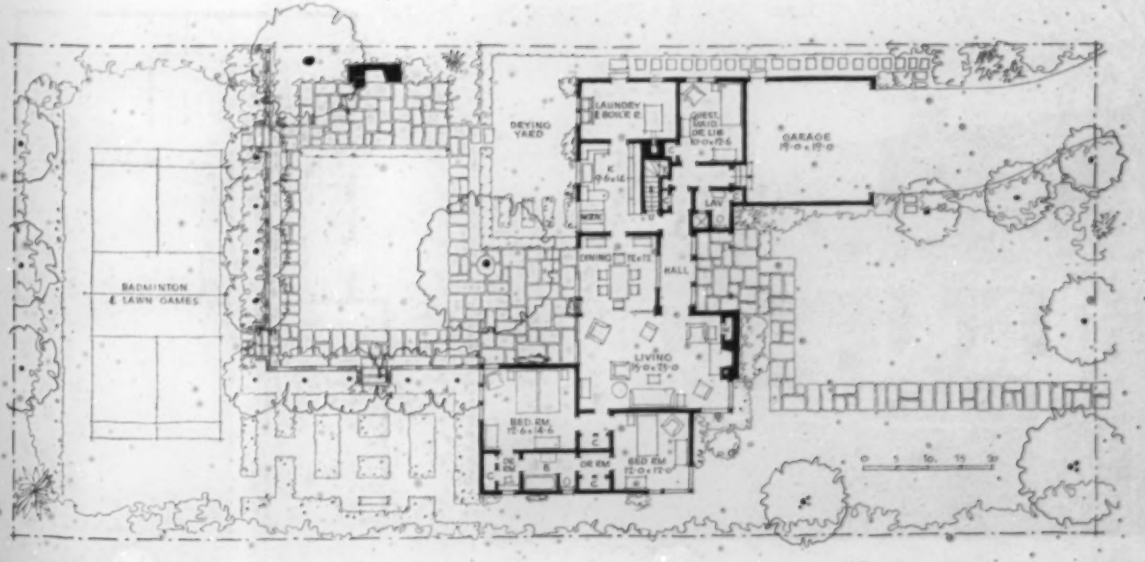
(Continued)

George Wellington Stoddard, Architect

3.

up trends, these show a definite leaning, in postwar thinking, toward the open, flexible plan. A particular point as to flexibility is the arrangement of the extra bedroom so that it can serve as guest room, maid's room or library.

Designed for Northwest sites, these homes are generally planned for frame type construction, featuring cedar exterior finishes of flush boards, rough sawn horizontal siding, hand split shakes, with some brick veneer. Roofs will be of rough shakes.



HOUSE DESIGN FOR THE MASS MARKET

By Randolph Evans

Henry Otis Chapman & Randolph Evans, Architects

THE POSTWAR HOUSE market presents a great new opportunity—nobody doubts that—but it also presents a serious challenge. Everything points to a tremendous and eager demand for new houses. Wartime technology and production miracles have engendered great and sometimes fanciful expectations for the postwar house. Costs will be high, and shortages of certain materials and necessary equipment items will pose plenty of problems to designers and builders. Yet a high volume of house building is important both socially and economically, and activity will depend to a large extent on ingenuity in creating attractive houses without having everything spoiled by excessive costs.

This article is devoted to one phase of the overall problem—designing houses for the planned-community builder as opposed to the "speculative" builder or "land developer." Home builders of this type, now nationally organized, are making ambitious plans for speculative operations on a large scale. It is practical that architects should consider realistically the activities of builders in the mass market, and the special requirements for working with them.

Obviously the architect cannot work with the builder of, say, $5,000 houses on the basis of an individual fee for an individual design. Personally, I should like to go much further, and say that the architect cannot work on any such normal basis on any house in that price class, even for an individual client. It is simply uneconomic to give the necessary attention to planning a $5,000 house (prewar costs) unless the cost of the work can be spread over a great number of units in a single operation.

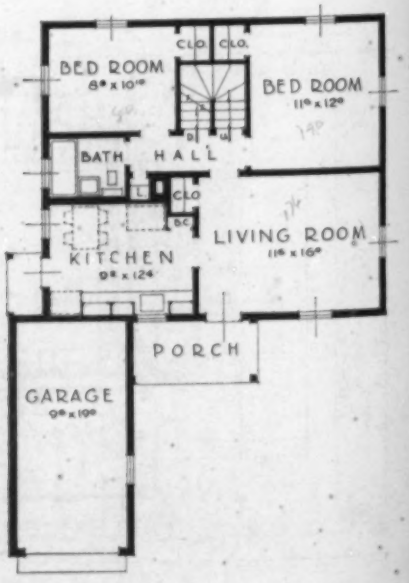
The architect can't do it for 5 per cent; he can't get much more than 10 per cent. The time spent just for conferences with the client would not be worth the profit, even without considering office expenses or drafting time, or supervision. It is not easy to make a living doing $15,000 houses on an individual basis; it is impossible to do it with $5,000 houses. Contrariwise, the family that wants a low-cost dwelling cannot expect to have a capable designer spend much time on drawing to his requirements and then redrafting to meet the budget. He would do much better to buy his house, satisfying his individual needs by selecting a prepared plan, choosing stock variations in orientation or finish or color scheme, or perhaps adding stock extras from the builder's offerings.

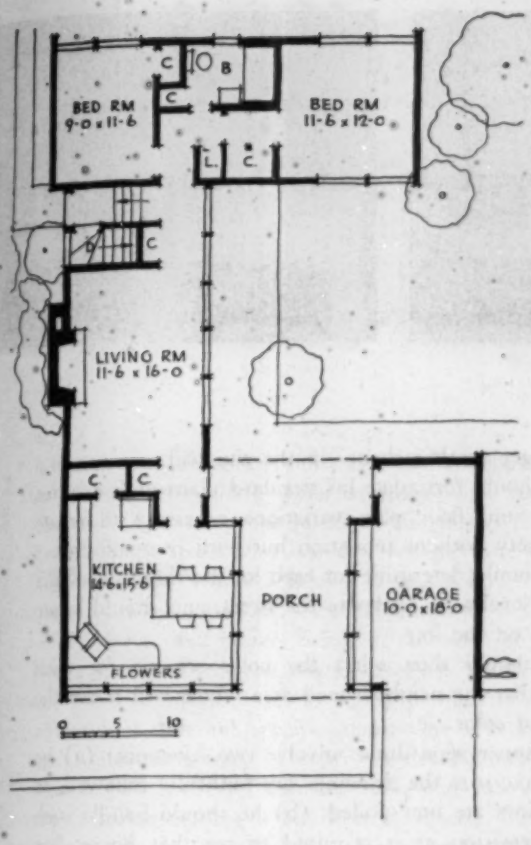
This statement assumes, of course, that the basic plans offered have been capably handled in the first place. If they have, the buyer is quite likely to get a better plan than if he tried to get a completely custom-designed house in a one-unit project.

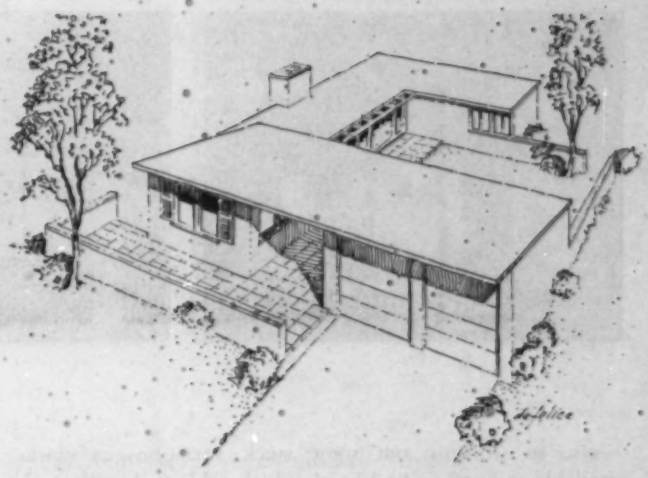
Suppose, for example, that the operation involves a hundred $5,000 units in a single subdivision. Suppose that the architect works on some such compensation arrangement as: 1 per cent plus $50 per house. The percentage might be considered as representing office and drafting costs. Whether or not it would work just that way, or the compensation would be just that, the architect would receive a total of around $10,000. For $10,000 he could afford to give considerable study to the basic plans, to the variations in styling, finish and color—the "cosmetics"

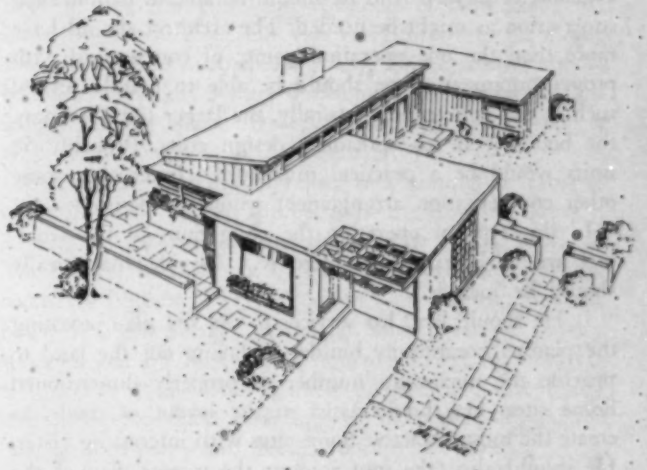
A plan, by the author, which proved successful for the under-$5,000 house in the 1939 market. The basic plan was the same for all houses, but differences in placing of garage, in "cosmetics" and color schemes gave 72 standard variations. Extras available to buyers added further variety. Plan was used 250 times in one project

Alfred H. Miller photos

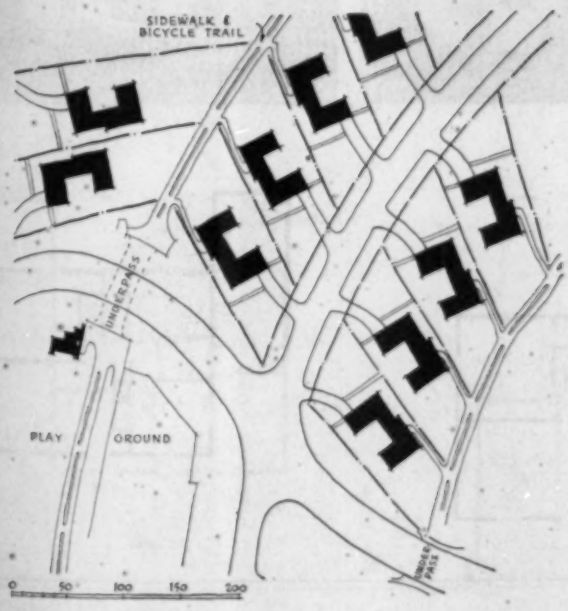








The plan above is the author's suggestion for a similar type of operation after the war. The open plan, he points out, offers more in livability for a slight extra cost for added perimeter. While many variations are possible, this particular plan was designed for the subdivision scheme below. In such a pattern these houses would offer views along a street, not just across it, and each would enjoy complete privacy. Houses would be reversed as orientation demanded. Henry Otis Chapman and Randolph Evans, architects



—also to working out some stock variations as extras available to buyers. And he should be able to handle such supervision as might be needed. The architect should have more than the one operation going, of course, and with proper organization he should be able to handle several such at the same time. Naturally, the larger the operation, the better it is for spreading design costs. Probably 50 units would be a practical minimum. Under that some other compensation arrangement would be desirable.

In this type of operation the obligations of the architect are fairly extensive. Here is a list of what ideally should be included:

1. He should lend his services to the site plan, assisting the planned community builder in laying out the land to provide the maximum number of properly dimensioned home sites. He should assist in the layout of roads, to create the most attractive home sites with interesting vistas. He should also take into account the master plan of the district; if the district does not have a master plan he ought to get another client—in the city hall.

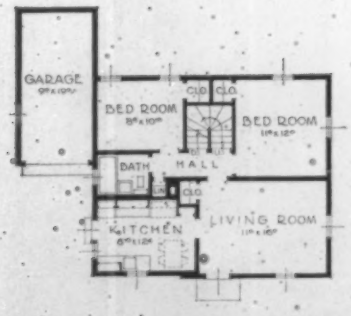
2. He should formulate his standard plans with exterior variations and floor plan variations necessary to create a community without repetition but with compatibility.

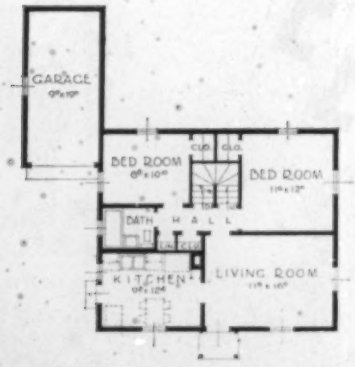
3. He should determine for each lot the elevation of the first floor level as it relates to the street, and should locate the house on the lot.

4. He should then select the color scheme for each house so that the neighborhood as a whole will make the best use of color.

5. His supervision duties involve two functions: (a) he should make sure the drawings are faithfully followed, so that the lines are not spoiled; (b) he should handle such other supervision as is required to see that houses are structurally sound.

What kind of houses? It goes without saying that the architect must accept without resentment the disciplines of designing for the mass market. What is more important, he should have the peculiar skills required for the com-





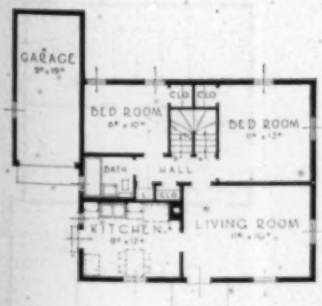
munity type of house. He must know what people will pay for. That is something different from what they *want*. The task is selecting out of all of the things they want, the special ones that they can and will pay for. What the architect needs to know is not so much how to design houses, but when to stop the designing.

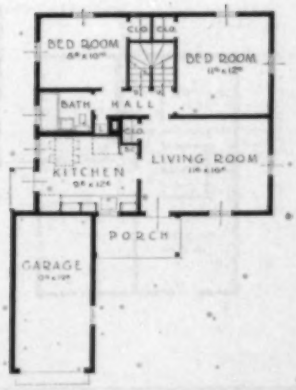
Well, what *will* buyers demand? In view of the time that has elapsed between normal markets before the war and the free markets still to come, perhaps it is best to present two different specific plans. One is a basic plan used quite successfully in a prewar development of just-under-$5,000 houses. The other represents our own suggestion for something a bit more advanced, for postwar markets in a comparable price class. This latter plan has been market-tested to a certain extent, and seems to show considerable promise.

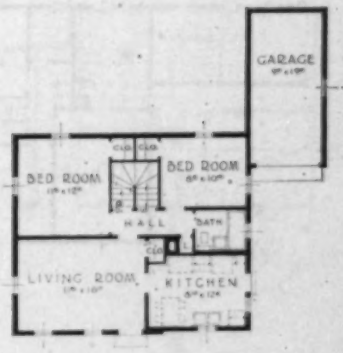
First, some background thinking that applies to both of these examples, and to the possible "progress" toward better designs for after the war. If the word "progress" be taken to mean more "modern" styling, then we are straying from the path. The cosmetics of the exterior are important, it is true, but the real improvement should come in plan, in facilities for living. The cosmetics should be added later, and styling discussions will have much less weight in the mass markets than in other spheres of architecture.

I think the contemporary idea of planning in terms of function is the proper approach. In the low-cost house it is probably more important than in the higher brackets. The expensive house can have a "living room," a "dining room," a "library," a "play room," and so on. But the house for the average returning soldier cannot have a special room for each major family activity; its relatively confined area must be planned for multiple use. Room terminology has little meaning—we have gone beyond the "parlor, bedroom, and bath" concept of rooms.

There will be progress, I think, in planning. Perhaps in the past there has been overly much emphasis on com-







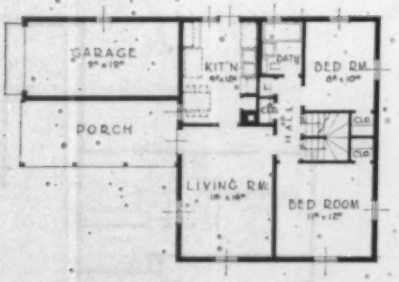
pactness in plan, on minimum perimeter. Compactness is economical, of course, but it does impose certain restrictions on planning for greatest usefulness and enjoyment. There is a marked trend toward opening the house to views, to make greater use of the outdoors, and to plan the house in relation to outdoor activities. This is one of many reasons for more open planning. Another is to improve interior layouts to make them more functional.

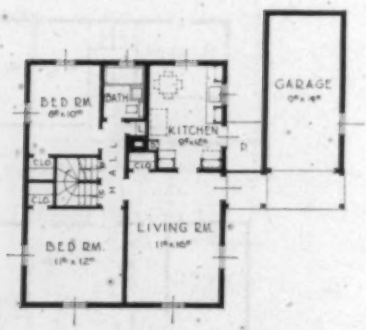
It has always been considered that the house must be compact, for reasons of economy. Actually, however, added perimeter is not expensive, particularly in these days of pre-cutting and site fabrication. With the same plumbing, heating, wiring, and so on, a house costs very little more for the extra outside walls. I wonder if it wouldn't be a very good investment, in terms of value in livability, for the same area, and I have an idea that the added value would increase sales. Indeed it may be necessary to selling in the postwar market.

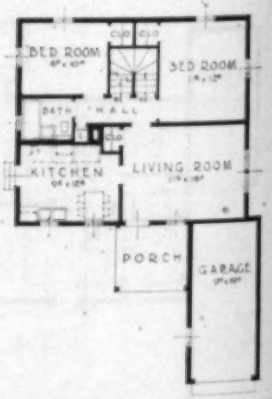
The open type of plan definitely does not mean a "modern" house stylistically. One cannot expect to be very bold in styling for the mass market. A certain "sweetness" is a positive requirement. Remember that the smaller the building, the more the purchaser thinks it needs embellishment. A great skyscraper or industrial plant is impressive; its mass is important. But a little house, undecorated, is just a shed. Whatever the reason, the small house does need decoration to sell; "cosmetics" is as good a word for it as any.

It does not pay the builder to be too far out in front of the crowd. It does not pay the architect, either, to be too far out in front of the crowd, if he wishes to lead it. If a 1910 model house were displayed right beside a 1970 model, I think the 1910 variety would hold its own in popular balloting.

The prewar house project pictured herewith is a reasonable example of the successful standard-plan development of about 1939. The enterprise involved selling from plans and renderings, in a 63-unit subdivision. After the project







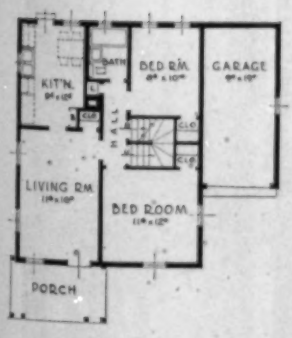
had been advertised, 63 checks were in hand on the first Saturday afternoon.

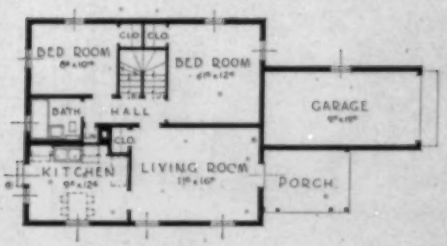
There was just one floor plan, the same plan for each of the 63. But surface variations were sufficient to make more than 63 individual choices without duplication. There were 12 variations in exterior treatment. These variations were accomplished by rotating the garage into different positions. Then each of the 12 was reversed. And there were three choices of color schemes, so that the total of possible combinations was 72.

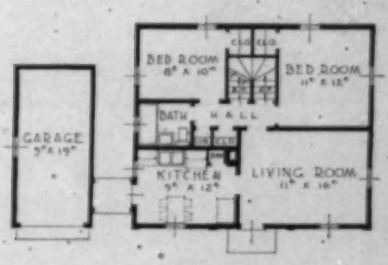
The project proved a veritable bonanza. All lumber was pre-cut, and the bill of materials was basically the same for every house. Carpenter crews became so proficient in the various little assembly jobs that they could literally work with their eyes closed. Labor costs were amazingly low. And the rapid sales made the development grow until the available land was quickly filled, with a total of 250 units.

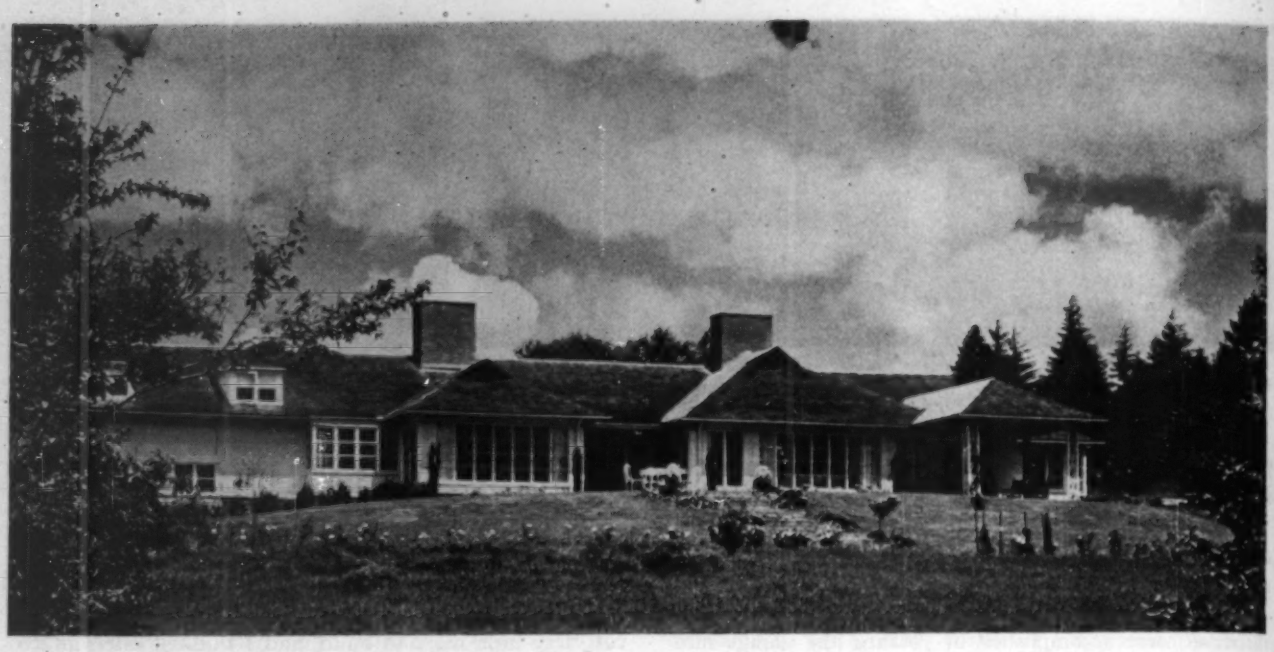
Recently I was asked to speak before a group of active prospects for similar houses at a meeting called by a savings bank. I showed the plan of this little house and discussed its many variations. The general reaction seemed to be "that's just what we want." But after a few expressions of that sentiment, I showed the open type plan (page 75). This plan has almost exactly the same area, should cost very little more to build, and I think it offers much more in its convenience and general livability. The listeners seemed to agree, and showed no visible hesitancy in accepting the more open type of plan. In fact, they were pretty enthusiastic about it. I think they would buy it even more readily than the earlier one.

This little test does not prove that the "modern" house will gain sudden acceptance in the postwar market. It would, of course, be very logical to develop this plan with the shed roof and plain surfaces of the unembellished style loosely called modern. But I venture to say it would sell better with peaked roof, some shutters, and, yes, some scroll-saw work too.









SPACIOUS PLAN FOR AN EXTENSIVE VIEW

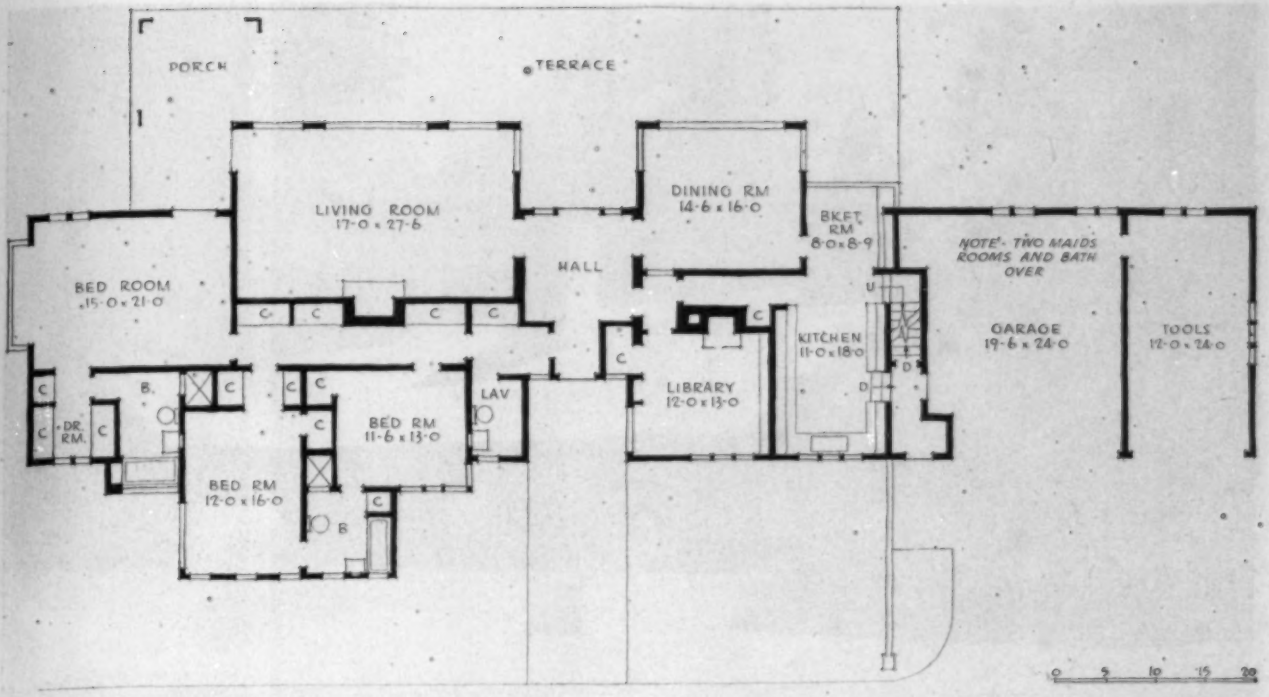
Suburban Residence for Mr. and Mrs. Henry Feldman, Portland, Oregon

CLIENTS' desires here were straightforward and definite: a one-story house with main rooms, including master bedroom, facing the fine view to the east. No flat roofs or large plate glass walls, no exceeding of the budget. Obviously, however, the budget was adequate for an extensive plan, with generous-sized rooms and plenty of bath and storage space.

Construction is frame, with exterior walls finished in flush cedar siding and waterproof plywood panels between windows to smooth out a spotty effect of the fenestration. Panels are painted a "warm gray" and siding an off-white. Main entrance door is a lemon yellow. Entrance hall and library are finished with hemlock board walls, edge grained. Living and dining room walls are covered with light straw-colored grass cloth. All ceilings are sand-finish, tinted a light gray-green. Kitchen and breakfast room in cream, coral counter top.

Herman Brookman, Architect

Herald Campbell photos


PORCH
TERRACE
LIVING ROOM
17-0 x 27-6
DINING RM
14-6 x 16-0
BKFT. RM.
8-0 x 8-9
HALL
BED ROOM
15-0 x 21-0
NOTE - TWO MAIDS ROOMS AND BATH OVER
GARAGE
19-6 x 24-0
TOOLS
12-0 x 24-0
KITCHEN
11-0 x 18-0
LIBRARY
12-0 x 13-0
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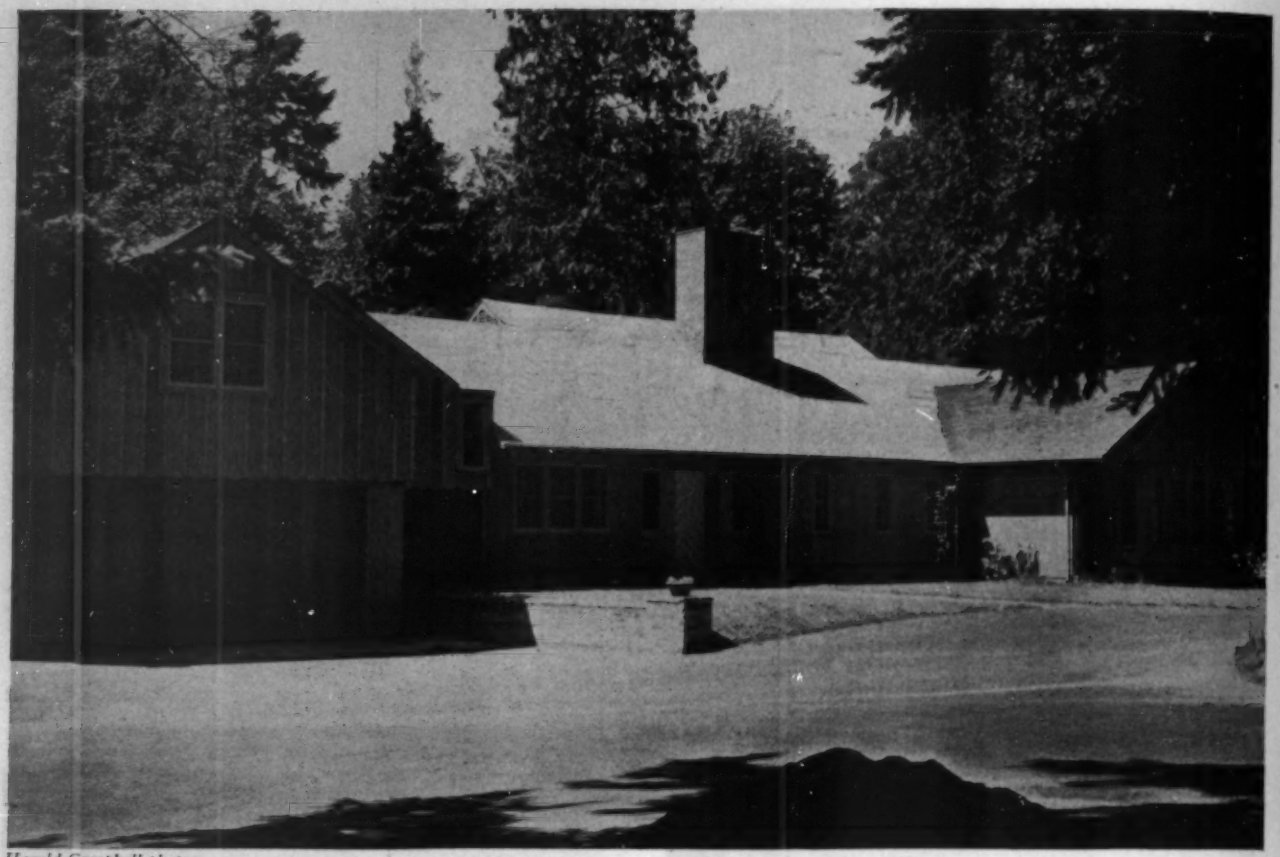


Herald Campbell photos

AN ASSIGNMENT:

POSING a not untypical problem, the clients expressed their fondness for the early American period styles, and also asked for a well-planned house to meet modern needs. The result is a free and open plan, with details reminescent of earlier times.

Since the plan is obviously unrestricted as to spaciousness, it is worthy of note that the dining end of the kitchen space is intended for the serving of all meals.

Construction is frame throughout. Exterior finish is flush vertical T & G boards and board and batten gable walls, stained silvery gray. Double hung sash, incised carved frame and panels at main entrance are painted a coral red with silvery gray overglaze.

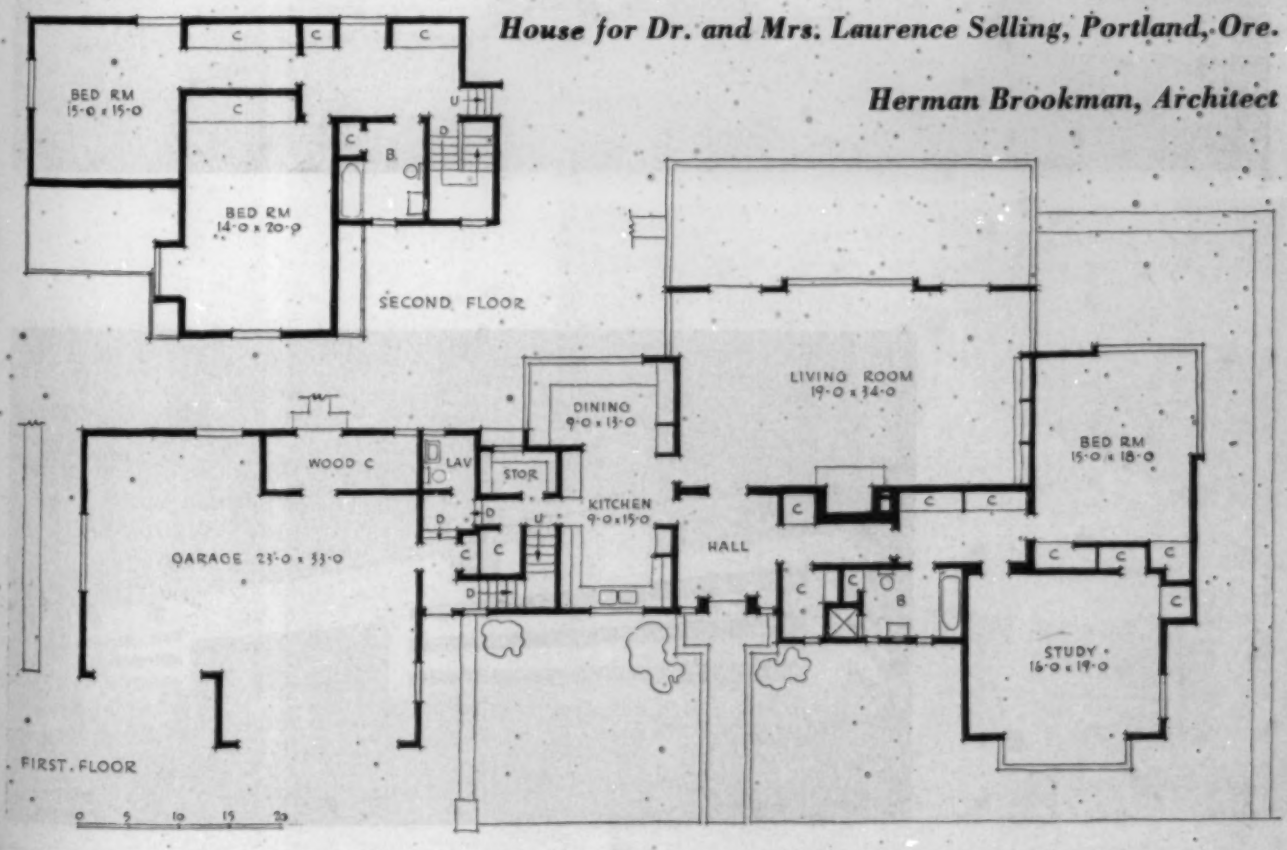
Principal interiors are done with hemlock board walls, and main entrance hall and living room also have ceilings of hemlock. All woodwork is glazed with a light gray coloring, then waxed. Flooring is of prefinished oak, in 1 by 3 boards with V joints.

Kitchen walls and cabinets are of hemlock, treated as above but varnished. Counter tops and leather-covered seats add a note of warm maroon.

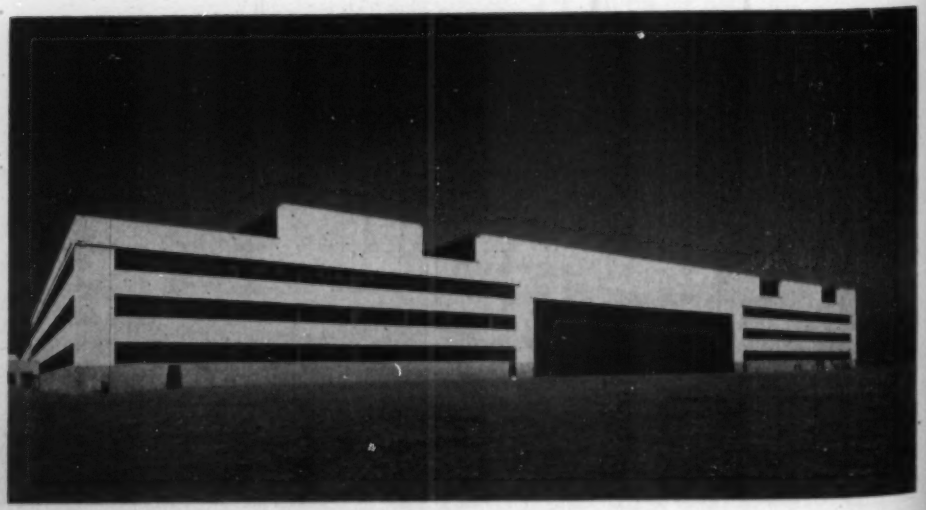
MODERN PLAN, CONSERVATIVE STYLING

House for Dr. and Mrs. Laurence Selling, Portland, Ore.

Herman Brookman, Architect

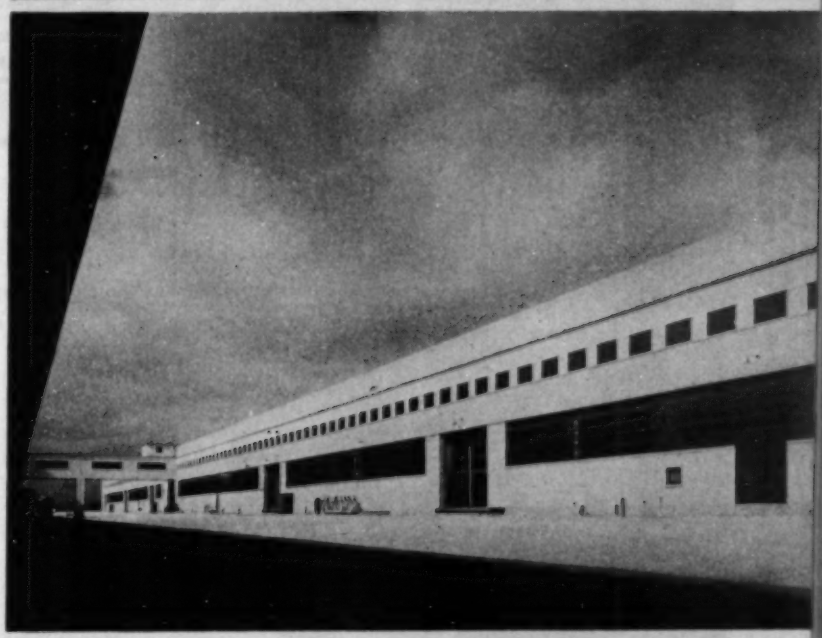


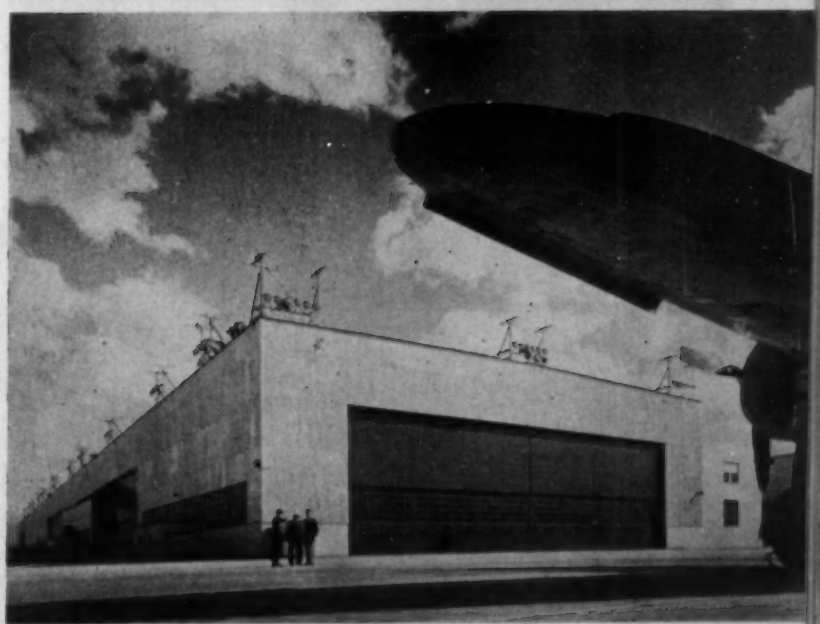
CURTISS WRIGHT AIRCRAFT PLANT CO



Hedrich-Blessing photos

COLUMBUS, OHIO





THOUGH this plant was one of the earliest of the great aircraft factories, it was also one of the latest. For, like many another, it just would not stay completed, and thus illustrates well the continuing problems of design facing architects and plant engineers alike.

The first unit was begun almost a year before Pearl Harbor, and was designed to be a completely integrated manufacturing and assembly plant within itself. It was divided into a low-bay area for manufacture of small parts, and a high-bay area for assembly.

But the urgency for more and still more planes soon required the complete streamlining of assembly methods. Construction of a second plant specifically for assembly by conveyor system was started and rushed to completion. Even that was not enough, and the third phase of the program began in 1943, and another huge building project was hurried through.

The third unit is called the service building, and is really two sections. One is a two-story building of concrete frame, masonry walls and Victory sash, for small parts fabrication and storage and modification repairs. The other building is a modification section where planes from the assembly line are adapted for specific fighting and climatic conditions.

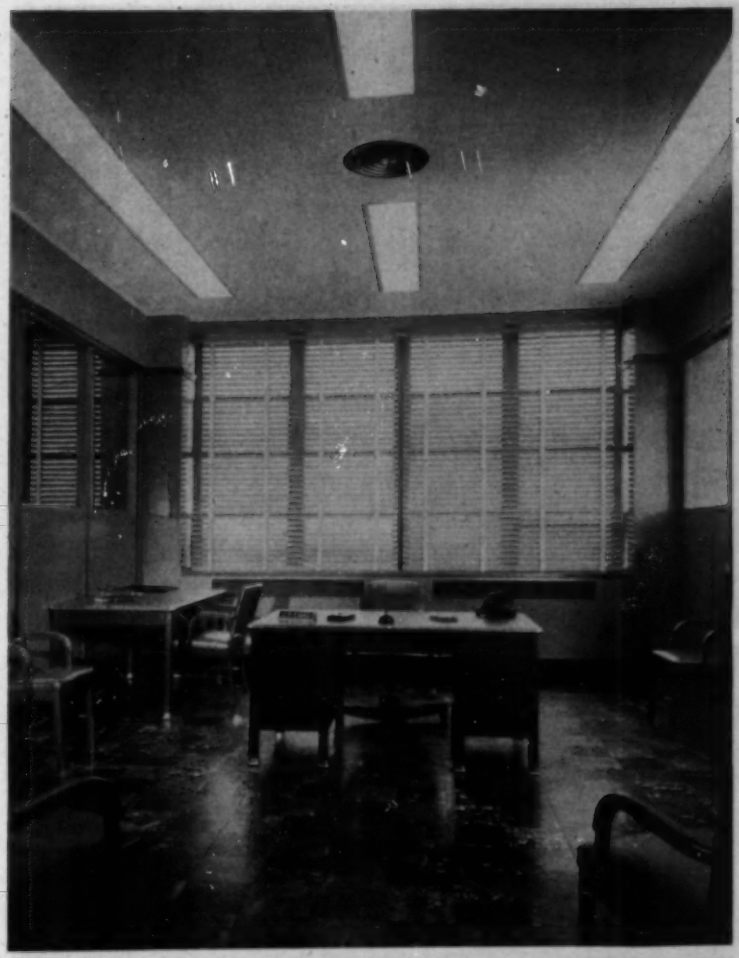
ALBERT KAHN Associated Architects and Engineers, Inc.

Darin & Armstrong Company, General Contractors

Baker Art Gallery photo

Administration Building lobby, above, and general manager's office, below, are done with characteristic Kahn simplicity. There is nothing casual, however, about the atmosphere of capable efficiency the rooms manage to convey

Typical office, right, in the Administration Building, and an executive office, lower view. Small photograph shows executives' dining room



By this time design problems were complicated by materials shortages; most of the 1,500 tons of structural steel required were procured from existing stocks, and only a very small portion needed new rolling. Stocks were located through the Steel Recovery Division of the WPB, and a four-man team representing owners, general and subcontractors, and architects inspected and approved stocks as they were located.

Wide concrete aprons extend 350 ft. out from two sides of this building, for handling and storage of planes after modification. Four tremendous canopy doors permit free movement of even the largest ships.

The second unit, or Assembly Building, is of the complete windowless or blackout type, with ventilation through supply and exhaust units for both summer and winter. This structure is fronted with an office building. The manufacturing section is of steel construction, with masonry walls to a height of 8 ft., and corrugated asbestos siding above to the roof line. The assembly section has a clear height of 35 ft., and two clear spans 120 ft. wide running the full length of the building. A feature of this building is a mezzanine 100 ft. wide and 1,400 ft. long for manufacture and sub-assembly of parts.

Left, top to bottom, view of the monitored Engineering Building interior; one of the general offices in the Administration Building; and workers' cafeteria in new Assembly Plant

Upon completion of this second unit, the original plant was replanned and space reallocated to fit in with the functional scheme of the whole. Half of the high-bay area of the first building, planned for final assembly, was made into a flight hangar, separated from the rest of the building by a fire-resistant partition.

Thus what started out to be one plant, large though it was, is now a reintegrated layout of three distinct plant groupings.

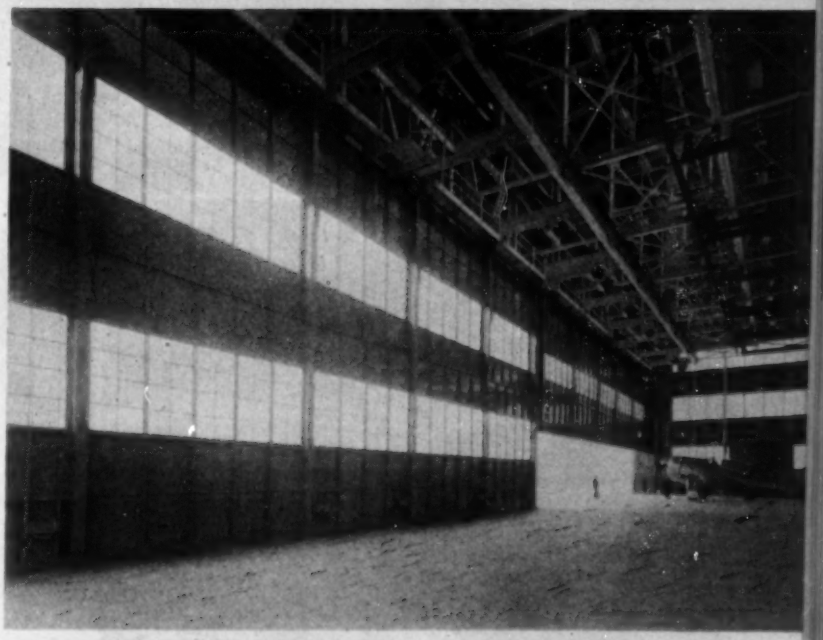
The original plant group faces south on a new highway, near the Columbus City Airport. It consists of three units, of steel, concrete, and glass. First is a two-story Administration Building, 50 by 400 ft. It has a full basement containing personnel and employment offices, a well-equipped hospital and a garage for executives' cars.

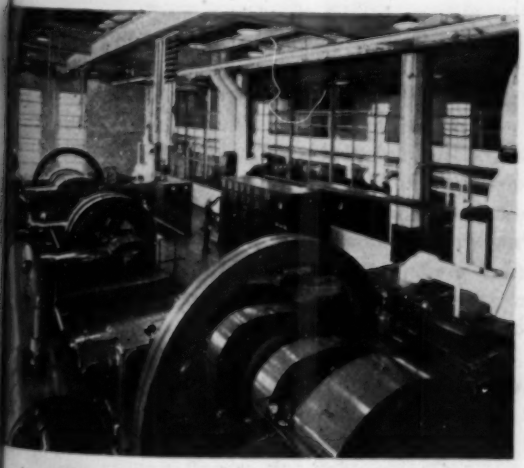
Adjoining is the one-story Engineering Building, 100 by 900 ft. An enclosed bridge runs from the second floor of the Administration Building, over the Engineering Building, and enters upon a balcony overlooking the

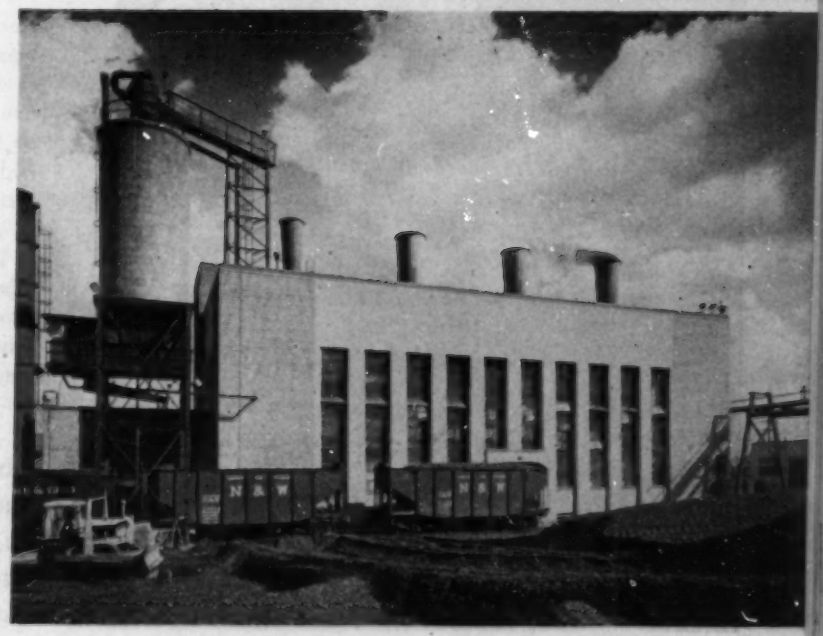
interior of the Manufacturing Plant proper. This is an extensive building of monitor-type construction. Top lighting passes through glare-proof glass. Provision for complete blackout was made, and fluorescent lighting gives practically daylight equivalent for night lighting.

Column spacing in the principal section is 50 by 100 ft., with a clearance under the bottom truss chords of 20 ft. In the sub-assembly portion the overhead clearance is increased to 40 ft., and the spans to 200 ft.

Incorporated in the Columbus plant is a Kahn feature developed for long straight-line assembly production lines—a 25-ft. subway-type corridor extending under the building. Off this tunnel are underground spaces which accommodate cafeteria and lunch rooms, rooms containing 1,400 lockers, washrooms and other employee facilities. Arriving at the plant, workers enter the tunnel, go to locker rooms, then directly to their work stations via stairs at convenient locations. The tunnel saves what would otherwise be hopeless confusion at shift-changing time.







Right, top to bottom, view along mezzanine of new Assembly Building; interior of final assembly bay in factory section; and boiler house. Below: air compressor room in the boiler house

DEPARTMENT STORES

Acme photos

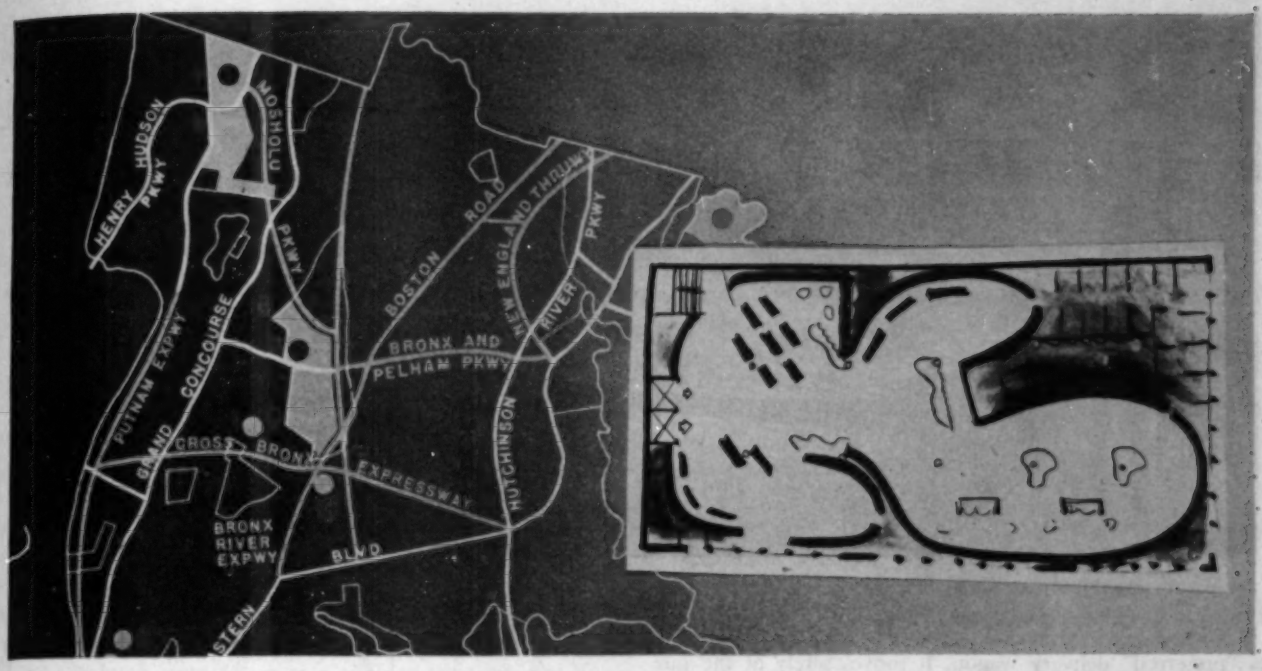
Architectural Record's

Building Types Study Number 95

From the intense activity of department stores in postwar planning there seem to emerge three definite major trends. 1. Automobiles as a preferred vehicle of shoppers are responsible for the creation of a whole new series of "outpost" stores. 2. The existing central buildings are to be thoroughly remodeled for intensified productivity. 3. Shoppers on foot in newly active metropolitan areas are causing the establishment of new downtown branches.

This study presents the results of the editorial collaboration of ARCHITECTURAL RECORD and *Department Store Economist*. The important subject of new merchandise handling methods will be treated in a subsequent issue.

LOCATING DEPARTMENT STORE OUTPOSTS AND BRANCHES • NEW TECHNIQUES OF INTERIOR PLANNING • DEPARTMENT STORE AIR CONDITIONING AND LIGHTING • VERTICAL TRANSPORTATION • EXAMPLES OF RECENT WORK



"Closely parallel to city planning, and closely interrelated"

WHERE ARE DEPARTMENT STORES GOING?

*By Kenneth C. Welch**

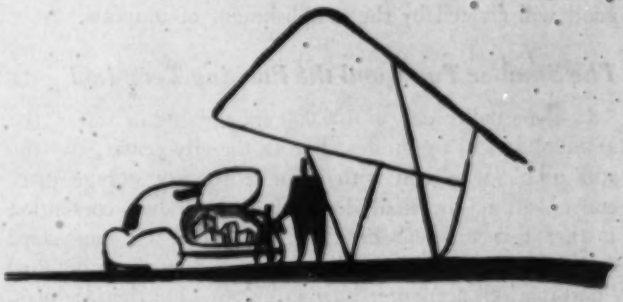
Department stores are actively planning their future in three principal directions. They are preparing to set up "outpost" locations where they can regain their grip on customers now shopping by automobile. They are planning branches in new metropolitan centers where people shop on foot. And they are thoroughly overhauling the big central stores for greatly increased productivity per square foot. The new expedients used, declares Mr. Welch, closely parallel those used in up-to-date city planning, with which they are inter-related.

GENERAL PLAN

A department store is like a city: it moves with the mass of the people. Like the city itself, the store marks a high degree of concentration; 4,000 such stores, in 1939, did a business of approximately four billion dollars. They represented 1 per cent of all retail establishments carrying similar merchandise, but in these lines they did 9.5 per cent of all retail business.

Like the city center, the central store faces a problem of major readjustment. Just as the city center has been losing population, so the big department store in the larger metropolitan center (the more normal prewar area) has found its share of total retail business declining. In the years 1929-1939, according to Fairchild reports, few even of the independent chains have held their own, and many "institutional" stores have dropped in relative position. The big snag, for both the city center and the central store, has been a major change in transportation habits and their effect on the shopping preferences of a majority of the people.

It is highly significant that the sales of mail order chains and other general merchandise stores during the same 1929-1939 period showed increases ranging from 50 per cent to over 90 per cent. It is significant for the reason that these establishments have not been bound to any large real estate investment in the center of the city, but have systematically used neighborhood and "outpost" locations. This not only followed the trend of decentralization of population, but the more accelerated trend of decentraliza-



"Preferred vehicle of 85 per cent of the market"

tion of sales in general merchandising, apparel, and home furnishings due to changes in the transportation picture.

Our transportation system has completely changed within the last 10 to 15 years. The favored vehicle of the American people is now one which is privately owned and controlled, which moves on rubber, and has a built-in parcel carrier which, under conditions of convenient use, becomes

* *Vice-President Grand Rapids Store Equipment Co. Member* AIA, IES

A curving plan suited to obtaining maximum linear frontage with no waste of sales person's circulation space, and with maximum customer space, under conditions requiring only modest forward capacity for storage. Though the effect is "free," every one of these elements is carefully calculated. Kauffman's, Pittsburgh; Kenneth C. Welch, consulting architect, John Schurko, designer

a "preferred" delivery wagon. It moves safely at the rate of 70 ft. per second, compared to foot travel at 7 ft. per second, and it is bound to no stated schedule or route. *Department stores will have to become accessible again to this preferred means of transport of 85 per cent of the market.*

Despite this radical change in transportation habits, the *central store* is still very necessary and important to even the largest cities. It needs extensive readaptation. In the case of the *smaller town,* the new problem for department stores is one of community parking terminals. In *large cities,* the large metropolitan store may make one or more of several different moves: (1) It may establish *"outpost"* branches in reachable outer zones close to major thoroughfares. (2) It may establish branches within *new inner* areas (with perhaps too great a density of population) which, by a curious twist, are becoming accessible not by automobile and not by rapid transit but mainly by traffic on foot (after the great majority of shoppers has reached the scene by some other means of transportation). (3) And, again, it may revamp the *existing headquarters* for redoubled productivity due to a specialized kind of service. In this way, also, the central store can capitalize on the good will created by the establishment of outposts.

The Smaller Town and the Parking Terminal

In the smaller city of 100,000 inhabitants or fewer, the automobile still penetrates close to the city center, and the stiff problem rolls in with it, of temporary storage space convenient to the final destination. My own contention is that this problem can be met neither by haphazard expedients and restrictive legislation nor by the individual "parking lot" no matter how ambitious. On the face of it, not even the most enterprising merchant and the most skillful architect can contrive an individual solution, any more than the individual merchant and his architect could build and control the street or highway. For every merchandising transaction that is consummated, the institutional store admits 1.7 persons; the specialty store, 2.4 persons. Let any merchant try to find even the necessary minimum parking space for half this number coming in by car! At that a really comfortable space allowance for a woman to park in would be not this minimum but more nearly 400 sq. ft. A solution is unthinkable except in terms of correlated community action, and then only by means of a series of interrelated terminals, so that the active cars parked briefly by shoppers are not clogged by "static" cars left to stand all day. In an active terminal, under optimum conditions of placing and planning, perhaps six turnovers a day could be effected during shopping hours. A project being developed by a civic-minded group of architects in Grand Rapids seeks to render such store parking economical at the required large scale by coupling it with evening parking to serve the municipal auditorium.

"Community parking terminals, permitting daytime use for shoppers and evening use to serve a meeting place"

The Downtown Branch Store

In downtown areas of big cities, as contrasted with the smaller towns, the automobile is creating a very different situation, acting indirectly. Most of the people leave their cars behind and come in by train or bus. But not so many proceed, as most of them did at the time when the big institutional stores were built, by rapid transit. Instead, there is an area developing, close to the major terminals, where people walk! In such areas, the higher the density, the shorter are the distances, and the more travel is on foot.

Highly active zones are now developing in New York City and other large cities, between mass transportation terminals and high population density areas, concentrations of the higher income-bracket labor force and the transient shopper from the hinterlands.

This latter group alone, with the high turnover per room of the better hotel, means literally millions of high purchasing power customers within walking distance of this type of shopping district.

Outpost Locations

The reasoning behind the establishment of "outpost" locations is simple: since the automobile cannot conveniently or inexpensively reach the central metropolitan store, the store meets the automobile. One might say to the institutional merchant, "You have built up a great reservoir of goodwill, which is now leaking beyond repair at the corners. Why not catch the leakage in pans of your own?"

Although the reasoning is simple and direct, the execution is as complex a problem as exists in city planning itself.

Generally speaking, a good distribution of "outpost" stores is to be sought on the basis of equalized time-distances.

In a recent survey conducted under direction of this author, we thought we had reached an acceptable result when we found positions spotted no further than 10 to 15 minutes away from 85 per cent of the purchasing power and 80 per cent of the population within the total trading area of hundreds of square miles—exclusive of the 20 per cent living in the congested section representing less than 5 per cent of the total trading area. This purchasing power is estimated by experienced department store planners and architects on the basis of present statistics and future estimates. Some indices are: the distribution of income tax returns, the past delivery records of the store itself, the distribution of non-commercial telephones, the number of servants, the proportion of home-owners to non-owners, the number of females over 14 years of age and their share of income. Another important factor is the cost of local transportation.

Once the proper store situations have been spotted on the basis of correct time-distances and efficient operation, very little attention need be paid to the condition of the immediate surroundings at the particular moment. The store will soon create its own surroundings. Big institutional stores are the strongest producer of pedestrian traffic that there is. Consequently the store can afford to acquire a far larger plot than it needs for itself, and develop this as a surrounding shopping center. The "competition" will do good rather than harm, with a very few rental safeguards, and will protect the department store in more ways than one.

In the general plan of such an "outpost" shopping center, the ratio of built-up area to open area may run as low as 1:5. Assuming some such ratio, it is possible to estimate the number of cars that can be served in a day, by subtracting driveways and allowing up to 400 sq. ft. per car for parking. The rate of turnover may be taken as six per space per day and the number of actual customers may be estimated from a physical count of car occupants doing shopping in an existing nearby area.

Even apart from the advantage the outpost store enjoys in terms of lower land costs and lower construction cost, there are economies that arise directly from its situation and its planning. One advantage is that the parking lot and the other open spaces are used as a natural firebreak, eliminating many costly expedients of fireproofing. Another advantage is the low building height, seldom more than two stories, eliminating much costly equipment for vertical transportation. Yet another is the possibility of using lower ceiling heights than seem appropriate at the headquarters store in the city. A fourth is the possible elimination of most or all show windows, since the impression on the motorist is made by the buildings as a group seen from a distance; it has been observed that the occupants of cars do not pause for window-shopping but proceed, forthwith, upon arrival, to the nearest entrance. The wall space that is gained by omitting windows is highly useful in providing storage space and backdrop space in the interior. (The surrounding specialty shops, on the contrary, must make the utmost use of window showmanship.)

The size of an outpost store is set by the requirement

"Upside down" tables eliminating the separate sales person's aisle; applicable also to self-service. Note fluid arrangement of department in rear, permitting access to high storage units for all sales peoples allowing easy change in relative front devoted to different kinds of goods. (Kaufman's, Pittsburgh, Kenneth C. Welch, consulting architect, John Schurko, designer)

that the stock must be representative. The trend toward packaged, advertised goods makes it possible to secure a sufficiently representative selection in ever smaller areas, since products are asked for by name and need not all be on display. In fact, packaged and branded goods reduce floor area in another way, by encouraging telephone shopping.

The longest permissible horizontal vista inside any store is approximately 170 ft. This is the distance at which, in good light, it is possible for the average person to read a sign of 7 or 8 in. lettering, or to distinguish a cup and saucer. This longest permissible vista will usually equal the total inside long dimension of the outpost store itself.

A special requirement of the outpost store is a method of routing and collecting goods so that they may be delivered at the exit in a single bundle. By this means the store's own delivery costs may be reduced as much as 75 per cent. Wrapping stations must be more or less aligned on an assembly route and there may even be some use of a conveyor.

The other requirements of the outpost store are similar to those of the central store and will be dealt with in the discussion of the store at the center.

A special department in Kaufman's, Pittsburgh

INTERIOR PLANNING

Higher Productivity of Space is the Problem

The crux lies in the department store's high cost of doing business. In the relatively normal period just before the war, this ran above 30 per cent of volume, whereas the competing specialty stores had costs closer to 20 per cent.

Occupancy costs represent a formidable part of the problem. Department store rents alone absorb 6 per cent or more of gross, whereas a supermarket, at the opposite end of the scale, pays only 1½ per cent for rent. Rarely can rent cost be reduced by expansion of the premises; *the answer lies in more productivity out of the same space, or out of less space.* Private stores in general are among the greatest space wasters in existence.

As a rule, the more crowded and confused they appear, both as to merchandise and circulation, the more space they are wasting—either by being located in an area not accessible to the preferred means of transportation or by having a poor selection of merchandise. Either alone is bad enough and a combination can be deadly.

Classification of Functions

New expedients for better use of space closely parallel the new expedients of city planning. Just as the old gridiron street plan is being radically modified by the "free planning" of main thoroughfares with liberal use of curved contours, so the old mechanical rectangular arrangement of the department store floor is being modified to get natural, easy, and interesting lines of flow for customers through the store. Just as city areas are being articulated for separate functional uses, so the functional requirements in the store are being restudied. The greatest error of amateur designers is to use the new "free planning" technique as if it were a matter of mere style and decoration. Its real justification lies in the fact that it stands up better, in skillful hands, than the old rectangular plan under strict statistical analysis.

Productivity Factors

The design of a good store rests on three major sets of productivity factors.

1. ***Fixed Factors.*** These are the ones that "can't be helped," such as the bulk of various kinds of merchandise, the public's addiction to Christmas buying which results in exaggerated buying peaks, and other items beyond the management's control.

2. ***Management Factors.*** The design is affected by the number of hours the store is open, by the average sale in terms of pricing (a high average sale does not necessarily create the highest productivity), the classification of merchandise, the policy on reserve stock, the management's creation of unnatural or unseasonal peaks of a purely promotional character in the frenzied search for increased sales, and similar points of general merchandising policy.

3. ***Design Factors.*** These involve such items as the routing of goods through the store, the location of reserve stock, and the treatment of the store's five major space-use functions, itemized herewith.

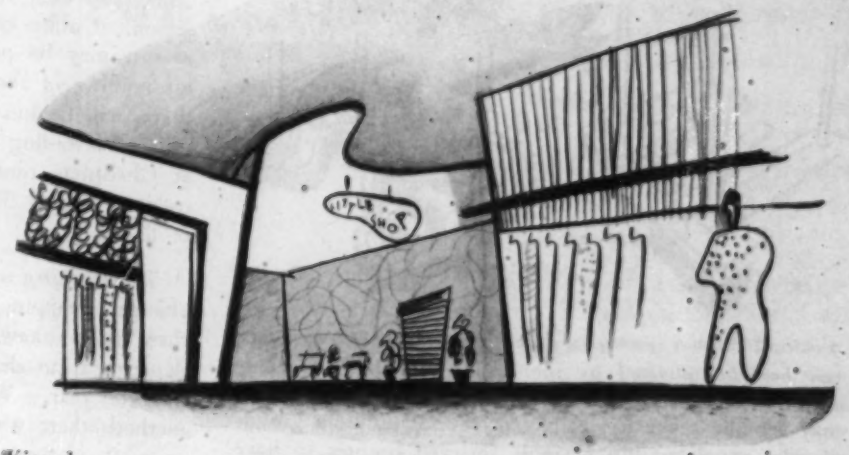
Space-Use Functions on the Selling Floor

There are no fewer than 250 separate departments of selling and service in a fully developed department store. In a brief survey it is impossible to make detailed suggestions pertaining to each, but there may be value in a break-down of the essential functions common to all.

1. ***Customer circulation space.*** Only rarely can this be designed most profitably in the shape of the familiar old gridiron. Entirely apart from being "old-hat," the completely rectangular arrangement often obstructs the best route to elevators and escalators, and produces a sense of complete confusion through its monotony. Free planning (in skillful hands) makes it possible for customers to distinguish different departments at a glance by differences in shape (which count more than mere differences in color or finish) and to proceed on lines that look easier, although they may actually do a little detouring.

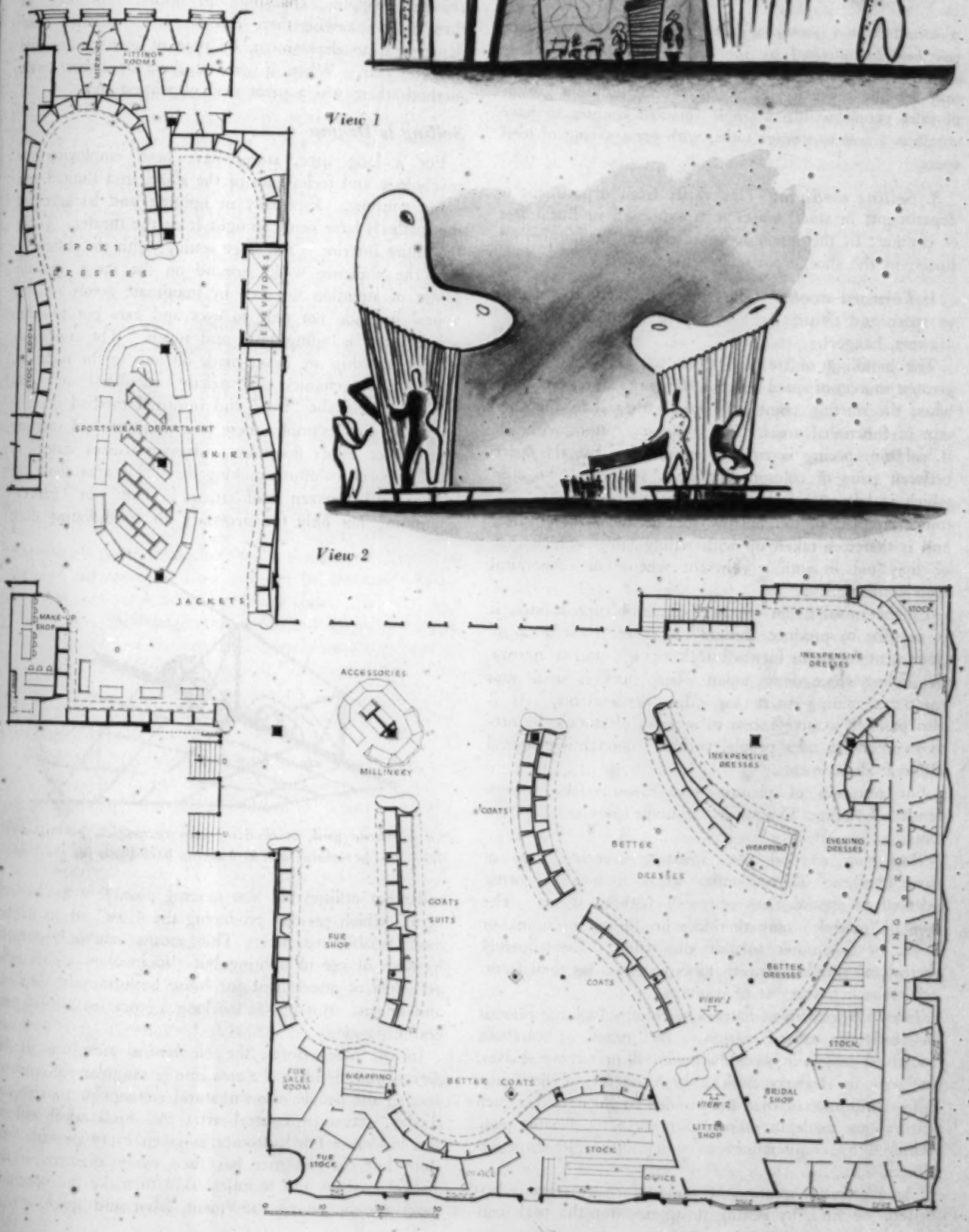
2. ***Sales person's circulation space.*** Free planning

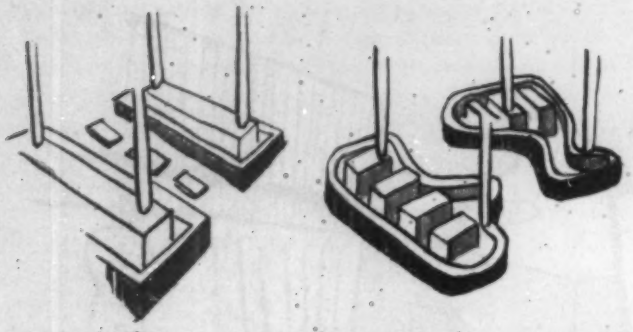
Selling floor being installed at Hochschild Kohn's, Baltimore. Top sketch shows view into "little shop." High display fixture on right guides the eye toward this alcove from a large part of main selling floor (see plan). Lower view shows reverse view out of alcove. Plan includes most of the components of modern selling floors (Kenneth C. Welch, consulting architect for the store)



View 1

View 2





Awkward column spacing ties down rectangular arrangements, can best be obviated by the devices of "free" planning

may actually make it possible for several different groups of sales people within a single forward counter to have common access to storage units, with great saving of total space.

3. ***Selling medium.*** This varies from department to department; in small wares it is expressed in lineal feet of counter; in the lunch room it consists of number of stools; in the shoe department, shoe chairs, etc.

4. ***Forward stock.*** The ability to carry it depends on space and fixtures which may be fitted for shelving, drawers, hangers.

The handling of forward stock has been one of the greatest sources of space waste in the entire store, especially when the starting point is a grid rather than the concept of functional areas. For example, a store with 24-ft. column spacing is virtually required to use the space between pairs of columns for stock storage. The aisle which is left over is too wide for requirements of customer circulation, too narrow for another counter area, and is therefore taken up with selling tables, which may or may not fit into a coherent scheme of economical merchandising.

By the introduction of variations and curved lines, it is possible to produce "bulges" wherever there is a requirement for extra forward-stock storage, and to narrow the selling space down again where stock is small and compact, gaining space for other departments. It is also possible to give access to a series of storage fixtures to many more sales people, perhaps representing several different departments.

For purposes of planning we measure the various kinds of storage fixtures by frontage plus cubical contents.

Packaging methods are upsetting accepted sizes of store fixtures. To economize space, fixtures are being adapted to special lines of goods without waste. The frontal "module" may therefore be 10 in., or 6 in., or 2 ft., or any other suitable dimension. Consequently there is no simple figure that can be given for total frontage of back fixtures or of counters.

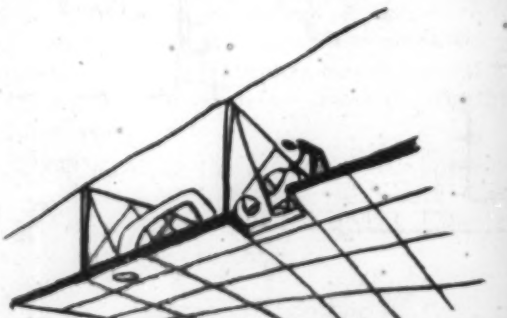
Interchangeability of fixtures has received a large amount of study in some quarters. By means of carefully contrived design, it is possible to install or remove shelves, hangers, or drawers with a high degree of flexibility. The significance of this is redoubled by the fact that such fixtures are made in shapes adapted to the flexible plan, achieved by combinations of units with filler-strips between.

As a practical matter, the design for any store is best tested, we find, by setting it up first for the peak condition and then considering what can happen in the off season. Unlike existing stores, in which even at Christmas it may be possible to play catch with a ball and hit nothing *in some areas,* the flexible store now taking shape will be busy at quite an *even rate in every area* utilized, avoiding waste. Incidental sales islands which, at Christmas time, have been packed with goods are used in July as display spots adapted to a summer sense of leisure.

5. ***Servicing units.*** These are devoted to making change, wrapping, charging and similar functions. In these units likewise there can be great variation from department to department, by type of merchandise and time of year. When it was all done by rubber-stamp methods there was a great deal of wasted space.

Selling is Drama

For a long time, stores have been employing the psychology and techniques of the stage, in a limited area —the window. Especially in lighting and background, the methods have come straight from the theater. Today the entire interior is the stage setting, with the difference that the audience walks around on the stage, and the center of attention is taken by inanimate goods and the appeal is made not only to eyes and ears but to other senses also, including taste and touch. The mechanics of showmanship are never made obvious to the audience, but these mechanics are strictly calculated and controlled, behind the "free" and informal method of presentation. For example, there is a trend toward carrying the roof or upper floors on wide-span trusses instead of closely spaced columns, making the whole area above the ceiling and between roof trusses a "loft" or "gallery" containing not only the necessary air conditioning ducts



An overhead grid, marked off into rectangles, permits great flexibility in lighting and in hanging backdrops for the "show"

and other utilities but also making possible a mechanical "grid" which permits producing the "free" effects in the most flexible manner. This means not only utmost freedom of use in lighting but also involves such details as points of attachment for hung backgrounds, displays, and drapes. But this is too long a story for a brief general exposition.

In the older stores, the *mechanical plan* was in the *foreground,* dividing the area into rectangular patterns and forcing the people into unnatural rectangular movements. Today, art must conceal art. All mechanical systems are hidden. The customer is given every possible freedom but the designer has used every resource of statistical analysis and technical skill to make the operation profitable by saving movement, labor and space.

DEPARTMENT STORE AIR CONDITIONING

By Alfred L. Jaros, Jr.

Jaros, Baum and Bolles, Consulting Engineers

PUBLIC DEMAND has made air conditioning one of the most important factors in department store merchandising, as important as attractive displays and fancy counters, but this alone has not been its only appeal. To the department store executive its importance lies equally with public demand and savings in cleaning bills, reduction in spoilage and general increase in personnel efficiency.

Prior to the war many large department stores were at least partially air conditioned, and it is expected that all new stores and most of the existing ones will be air conditioned as soon after the war as possible. The self contained conditioner may be used in the small store or in a single department. The direct expansion system which consists of a fan, direct expansion coil and compressor using no intermediary cooling medium such as brine or water would be very economical for a large installation. However, because of the toxic nature of the refrigerating gas, these systems are often prohibited by local building codes. This would be particularly true if a restaurant were to be included in the store, for building codes would then consider the space as "general assembly." The individual dehumidification and central refrigeration system which is similar to the direct expansion system is the type most apt to be used. This system uses chilled water distributed to the coils or spray-type dehumidifier rather than allowing the refrigerant to be distributed directly to the coils. Because no toxic gas can be delivered to the room, this system is permitted by all codes.

In locating the refrigeration equipment of a department store, placement of the mechanical equipment will have to be taken into particular account. In department store design it is often advantageous to place the equipment on the roof, thus leaving the basement free for the proverbial "bargain basement."

Whether designing a new store or remodeling an existing one, most of the basic considerations regarding the air conditioning layout will be similar. Apart from the initial and operating cost of the equipment there is the fact that the department store is inherently divided into departments or zones. The actual structural articulation of the building should be viewed carefully so that structural changes will not be necessary as departments change. Particular attention should be given to any department that is likely to undergo changes. Any choice of equipment will warrant consideration of installing the refrigeration equipment in progressive units so that as the need develops the individual units can be tied into the entire system.

Probably the most common initial installation after the war will be the conditioning of the first floor with exhaust ducts in the basement, which, in effect, will cool that floor. However, when possible, the entire building should be conditioned or at least have provision made for the future expansion of the system. It is generally recommended that floors be zoned by means of individual systems for the basement, first floor, and second floor—while combined systems may be used for the floors above. Such zoning by floors permits greater economy in installation, allows for future expansion, and gives better control of the system. The density usually found in the lower floors makes control of humidity and temperature particularly difficult if individual floor zoning is not used.

A "must" in any type of air conditioning installation will be separation of humidity and temperature controls in order to prevent the humidity from exceeding predetermined limits during the difficult spring and fall seasons, as well as the winter and summer. There are two general ways by which this may be accomplished: (1) By cooling the air to a dew point required to maintain the relative humidity, and then reheating the air sufficiently to maintain the desirable dry bulb temperature; (2) dehumidifying the air by chemical means such as silica gel or lithium chloride, and then recooling the air sufficiently to maintain the desirable dry bulb temperature.

The apparatus used for humidification should be integral with the equipment installed. All air conditioning equipment should be designed to avoid problems of different water levels to prevent the possibility of flooding, and designed to prevent the system from fouling or setting up electrolitic action or oxidation in order to insure a system of maximum efficiency.

All air conditioning equipment will have as one of its functions the elimination of dust, which can be done with the usual filter, or by means of the newer electrical precipitator. If there is to be a restaurant or other eating space, it would be well to consider the use of activated charcoal filters to remove any contaminants of a gaseous nature. The use of the charcoal filters would be particularly necessary where a recirculating system is used. The cleanliness which a filter system gives has long been recognized by department store owners as one of the chief benefits of air conditioning.

The recirculating system using 1/3 to 1/5 outside air mixed with 2/3 to 4/5 inside air is probably the most economical system for department stores. This recirculating system should be zoned by floors. The tendency to increase the number of lights, their wattage, plus the general increase in volume in the store, has made zoning the most practical method of caring for the load factor.

Load factors resulting from people entering and leaving the building must be seriously considered. Experience has indicated that guess or approximate figures are unreliable in figuring loads, and that worthwhile figures can be obtained only by clocking the number of people entering and leaving the store over a given length of time.

In order to compensate and permit the proper functioning of any system, it has been found advisable to keep the building under a slight pressure so that the air will be blown outwards as the doors are opened. This arrangement will also permit easier balancing of the fresh air intake through the system.

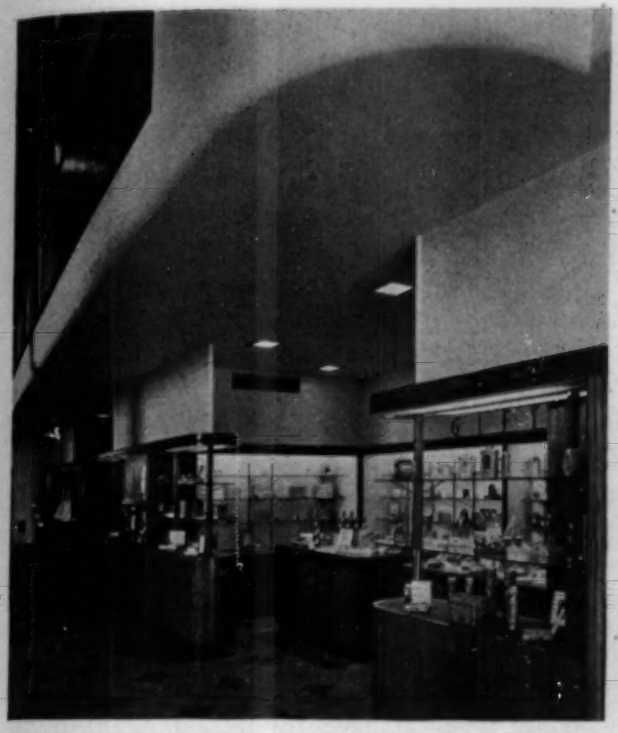
FOR A RURAL CENTER NEAR THE BIG CITY

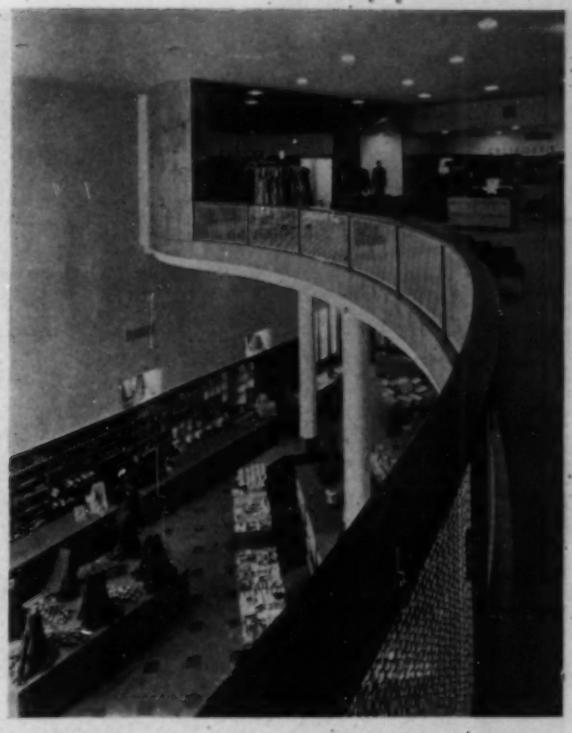
Department Store, Petaluma, Cal.

Hertzka and Knowles, Architects

THIS store serves a farming community of approximately 30,000 centered on the prosperous little city of Petaluma; the building was designed to enable the merchant to compete with San Francisco, within a 30-mile drive.

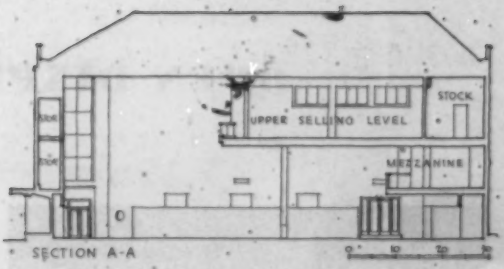
The diagonal plan admirably exploits a site at the intersection of two equally important shopping streets. Although the corner is prominent in the view from the highway, the entrance itself is too low to be seen by drivers. By raising the corner window full height the designers have made the whole interior a show window

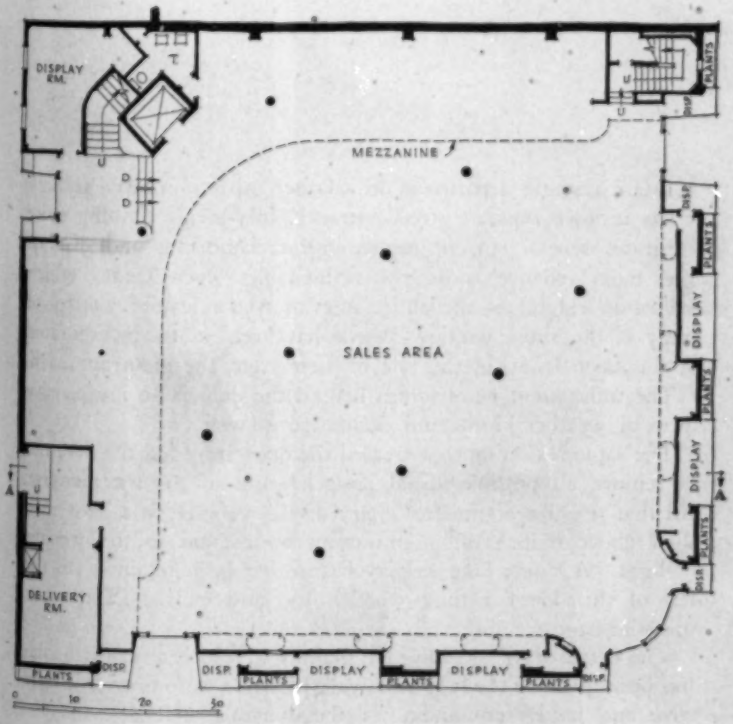




big enough for the distance; also, the entire wall serves as a billboard.

The balcony treatment of the mezzanine and the upper selling floor, as shown in the plan and the view at the bottom of page 98, was dictated not only by the large window but also by the desire to unify the whole interior and give it large scale. The diagonal aisle leading straight to the elevator provides an impressive selling vista. The permanent canopy over show windows to the street is easy to maintain, and the plant boxes, besides adding charm, reduce the necessities of window dressing.





OPEN DISPLAY BEHIND AN OPEN FRONT

Men's clothing department of a store in Brooklyn

Morris Lapidus, Architect

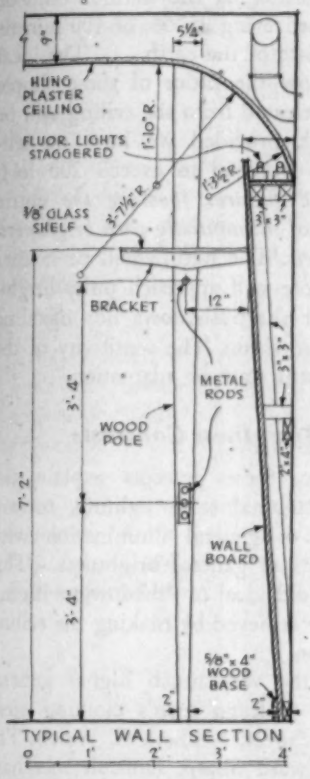
REALLY a single department in a larger institution, even though it has its own separate street entrance, this men's clothing store illustrates several current trends in merchandising and display. The main reliance is on the fashionable "open front" which makes an exhibit of the entire interior, yet a feature worthy of study is the show window which has been subtly incorporated in this open front, in the line of view from the main approach.

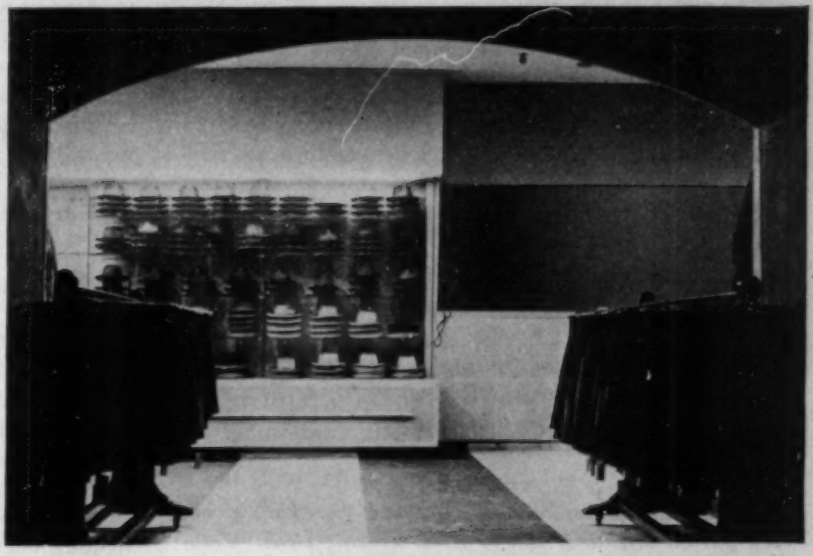
The transparent wind screen behind the door is an inexpensive form of weather block, and decorative as well.

The same reasoning that created the open front led the designer to remove all possible visual obstacles around the merchandise. All that remains of the customary display cabinets is a glass dust shelf above, which offers minimum obstruction to the passage of light. A single long display fixture has been retained (to the left of the door) with a wooden top and ends. (Top view, opposite page.)

The detail drawing shows the manner in which a forward splay has been given to the long side wall, partly so as to provide a light cove and partly, no doubt, for the dynamic effect.

High diffusion of brightness is aided by reflective floor, blond walls, covelit ceiling. Top, right, open-front fixture; bottom, open hangers. Bottom acrosspage, bench for delivery boys





THE LIGHTING OF MERCHANDISE

New visual engineering concepts are as important as the new light sources

THE most basic of all changes in department store lighting is a change not in fixtures or in "cathodes" but in the primary scientific formulation of purposes.

The illuminating engineer's way of phrasing this change is, in the words of George Ainsworth,* *"foot-candles must yield the right of way to foot-lamberts."* The foot-candle is of course, a measure of light *output*, the amount of light delivered at a working plane from a source. The foot-lambert, on the other hand, is a measure of light *reception*, the "brightness" finally delivered to the eye, whether it comes directly from the source or by reflection from ceilings, walls, floors and objects.

"The present commercial lighting applications," says Mr. Ainsworth, "cause a high degree of confusion and color distortion. The daze can be compared to driving a car under the elevated railroad ties on a sunny day. Retinal sensitivity of the eye is highest, and visual impressions are most pleasant, when adaptation is accelerated by a uniform field of brightness all around. A new name for this concept is *spatial brightness equilibrium*. Brightness is what the eye sees. Its equable distribution gives a sense of abundance in contrast to an equable distribution of foot-candles . . . The ultimate ideal for effective seeing conditions is to make the enclosing surfaces of the area reflect lumens in the same *proportion* as the natural outdoor panorama when nature is delivering 25, 50, or 100 lumens per square foot on the surface of the earth . . . The ideal interior needs only to follow the ratios of these simple reflection factors. Lumens released from the ceiling will be held in a tight framework provided we have no self-luminuous sources in the overhead to exceed 200 foot-lamberts. *The ceilings and fixtures forming the* entire overhead *of rooms must be of substantially even brightness.* And this means what it says. The fixture will be neither brighter nor darker, therefore will approach unity brightness overhead, and neither sharp shadows nor dazzling reflections will occur to blur vision. The sensitivity of the eye will remain in a constant state of adaptation."

**Chairman, IES Committee on Fundamental Standards of Quality and Quantity in Artificial Illumination. Thanks are also due to Francis Keally, AIA, and to H. E. d' Andrade of General Electric Co. Lighting schemes for which drawings were made for the* RECORD *by T. de Felice are used by permission of General Electric.*

Judicious combination of down-light and "up-light" giving even general brightness and 30 fc. at working plane. Walk-Over Shoe Store, New York, by Eugene and Lee Schoen

Higher Levels, Lower Brightness Contrasts

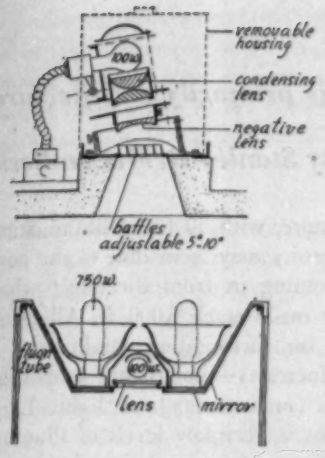
Translated into practice, these precepts explain the undeniable trend in institutional store lighting, toward very much higher levels of general illumination with greatly diminished contrasts of general brightness. (This by no means refers to the old ideal of "shadowless illumination" which was actually achieved by making the ceiling bright out of all proportion.)

The reasoning behind the very much higher general levels is illustrated by a Chicago men's clothing store episode reported by the architect, Kenneth C. Welch. The lighting engineer was Howard Sharp. Difficult merchandise was assembled by the various buyers on a panel and viewed by all. Outdoors in the shade, under a general level of 500-700 fc., all differences of color, texture, form and quality were instantly and completely apparent. Indoors, under a prevailing level of 4 fc. and sales-counter light of 8 fc., the buyers wondered how they had ever been able to sell a $5 shirt, it looked so little different from a $1.50 shirt. Goods were then held closer and closer to the light up to the point when all agreed that essential qualities were clearly apparent. The ultimate decision, reached without hesitation, was that a minimum of 50 fc. should be maintained to the farthest corner of the store, which opened with a general level of 80 fc.

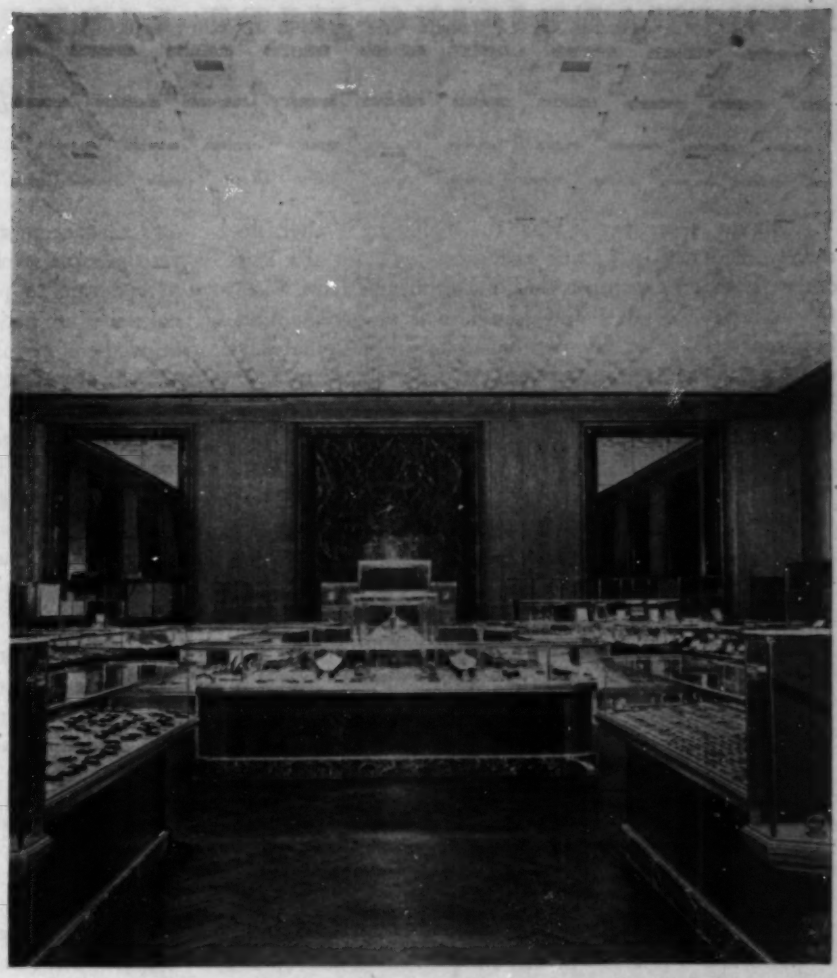
In department stores, of course, the permissible level varies economically from a furniture department doing perhaps $11 per sq. ft. to a better jewelry department in a better store with a goal figure of perhaps $431.

Light Sources

There are now three types of light source available for stores, each with specific advantages if properly used. The latest is the gas-filled tube, generally referred to as "cold cathode." It can be bent very freely in lengths up to 40 ft., comes in a large range of colors, and has low self-luminosity. Barring breakdowns, it retains most of its efficiency over periods as long as two years and may con-



Details, above: spotlight used above coffered ceiling and floods set in the top of store fixture which shows against the marble panel at center of photograph



A CLASSICAL EXAMPLE of a natural, easy lighting effect obtained by combined "down" and "up" light. (Tiffany's, New York, built just before the war; Cross and Cross, architects; J. Gordon Carr, designer of interiors; Clifton Smith and Edward B. Silverman, electrical engineers for lighting installation)

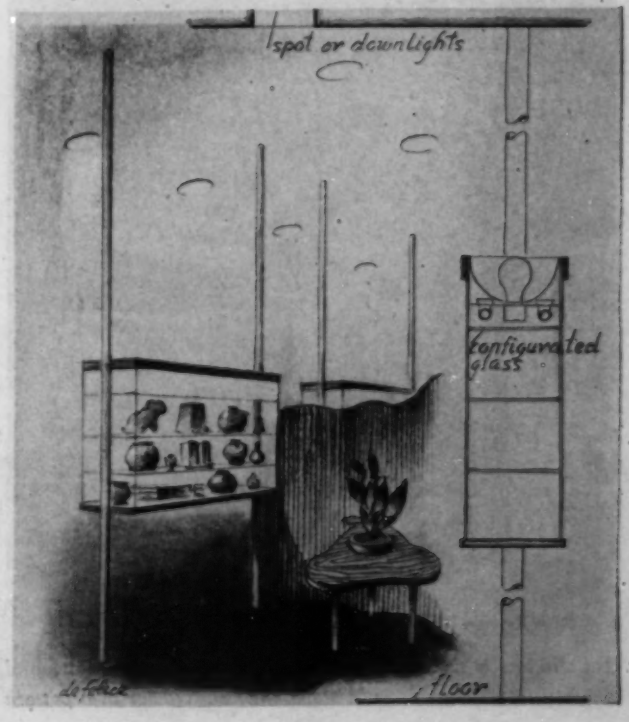
tinue to give out light for many years more. The low replacement rate has important bearing on cost savings in maintenance. The small diameter of the tubes makes them a "line" source efficient with reflectors. Because of the steep rise in starting voltages at higher wattages, there are some lighting designers who use the gas-filled tubes only in positions well out of reach of ordinary store personnel. Fixtures and cathodes are both in process of close study and development. Lumen output per kilowatt is reported, by qualified store architects, to be already well within the competitive range. An economic study is not yet possible, however, because of rapid changes under way.

The general qualities of fluorescent lighting are already well known. The 4-ft. 40-watt fluorescent tube is said to be the most efficient light source available today in terms of watts per lumen. In stores, fluorescent tubes are particularly favored where light is in close proximity to fabrics and there is a problem of fading. Tubes will be available after the war in numerous shapes including rings. Fluorescent lighting is predominant in fixtures and counters.

Incandescent bulbs are still indispensable, partly because they complete the color spectrum and are rich in the orange-yellow light in which gas or fluorescent tubes are lacking, partly because they form a concentrated point source, essential in such fixtures as spots and highly useful in others such as floods. Also, there are some maintenance engineers who prefer to "reach more lumens at a time in dust removal."

One of the strongest trends is toward fixtures combining incandescent and fluorescent lighting.

Much confusion exists today on the subject of light "coolness." Without exception, the actual heat output of any light source is directly proportional to its *wattage*. The wattage is all that need be taken into consideration, for example, in computing the load for air conditioning.



MERCHANDISING WITH LIGHT

The problem of obtaining desired effects is primarily architectural

By Stanley R. McCandless*

EFFICIENCY OF EFFECT is what the merchant is after, not merely efficiency in getting the most light for the least outlay. Even an expensive kind of lighting, perhaps wasteful in itself but novel and stylish, will be accepted unhesitatingly if, let us say, it promises to build annual sales on a main floor from a previous $175 per sq. ft. to $225. In such an extreme instance, the new lighting could be costly indeed and yet not raise the *ratio of occupancy costs to selling volume* on which the merchant bases his judgment. In one actual example the general illumination of the store was raised 300 per cent through careful engineering, yet the increase in sales necessary to maintain the previous ratio of occupancy costs to sales was only 5 per cent. The operating department should have control only to the extent of making sure that the layout is the most efficient for the effect within its class.

Visibility

Amounts can be controlled to yield results from bare perception to discrimination of fine detail. Certainly the most visible objects in the range of sight should be the goods, not large brilliantly lighted expanses of ceiling or empty wall. Intensity requirements vary: it is possible to produce the effect of brilliant sunshine on the stage, or well back in a large store, with 50 fc. of illumination; yet the same level of intensity may seem dim to the point of eyestrain to people coming in from the street where natural illumination may easily reach 5,000 fc. Allowance must therefore be made for surrounding conditions.

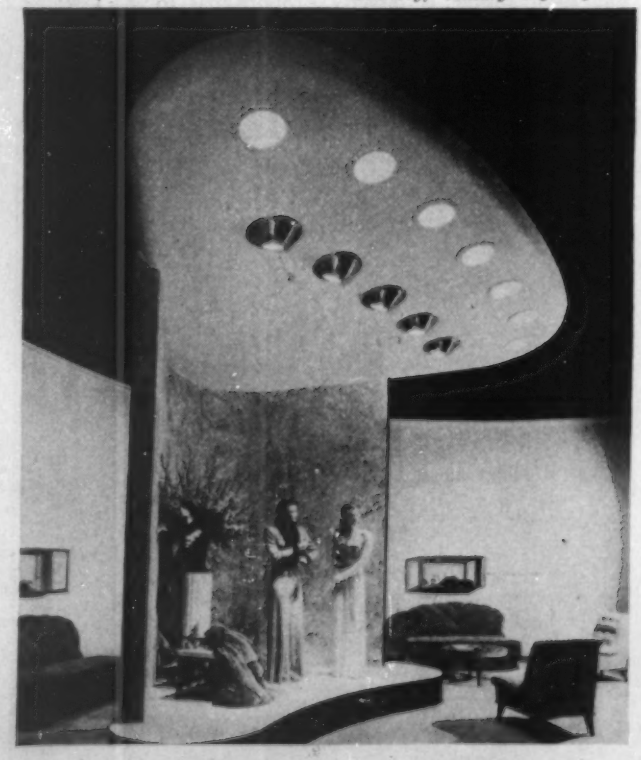
Distinctness of vision increases—though not proportionately—with the *amount* (or intensity) of light. Large masses become perceptible at very low levels of illumination once the eye is adjusted; for circulation and casual observation, therefore, 2 to 5 fc. may be quite adequate; reading requires more than 10 fc., and displays may require intensities anywhere from 30 to 500 fc. (Incidentally, if 500 fc. are used in a display, 5 fc. in the adjoining aisle will barely fall within acceptable standards of contrast.)

Color in light affects visibility seriously only when it is saturated (pure) or when it is of the opposite hue from the object observed. Tints and white light are safe to work in. "Daylight" lamps reach higher veracity at high intensities, though at best they render only an approximation of "daylight"—which is variable in itself. Mixtures of incandescent and fluorescent light are a great modern aid.

Distribution of light in a store is distinctly not at its best when absolutely even. Shadowless illumination robs objects on display, most of them solid, of modeling and separate distinctness. These qualities are literally "brought out" only by light, shade, and cast shadow.

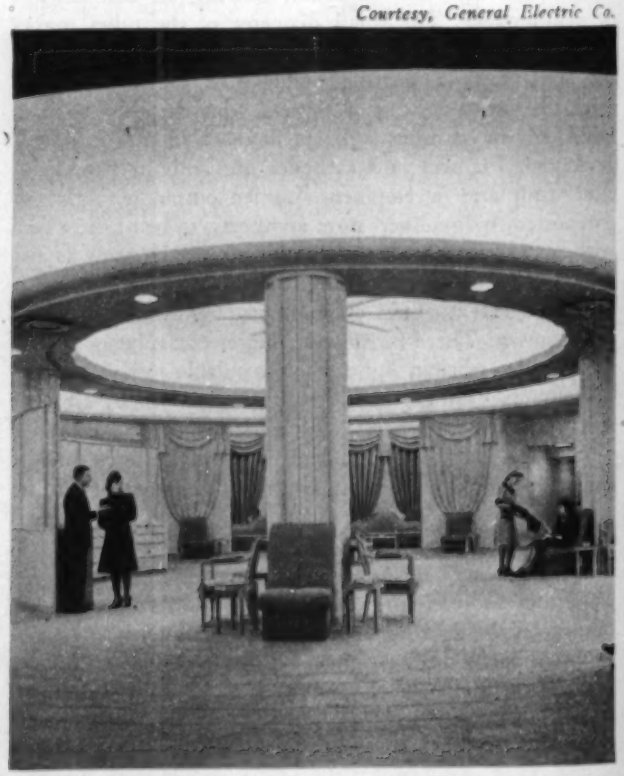
**Associate Professor of Lighting, Yale Theatre, and Development Consultant, Century Lighting Company.*

Courtesy, Century Lighting Co.



Installation at Bamberger's, Newark, designed by Raymond Loewy, sets the goods on a stage and the fixtures in a pattern

Courtesy, General Electric Co.



A very different lighting atmosphere is achieved at Marshall Field's in Chicago. Light-colored carpeting aids diffusion

Installation in top drawing, right, gives high degree of control, using new curved fluorescent bulbs. Middle drawing shows a method of obtaining dramatic light on walls and recessed show cases. The flood and spot combination in the bottom drawing is especially adapted to flexible methods of lighting patterned draperies

Movement of the person, the eye, the light, or the object with reference to one another is important, for example when customers pass store windows or displays.

Window lighting has undergone a great change as the former practice of general floodlighting has yielded to emphasis on the goods themselves. The back of the window should receive less light than the display. Objects varied in color are best illuminated by a light not too strongly tinted. Modeling by means of individual spotlights is needed, along with proper emphasis and color of general lighting, to consummate the process of "three-second selling."

The four requisites of quantity, distribution, color, and movement of light work together, in varying relationships of importance.

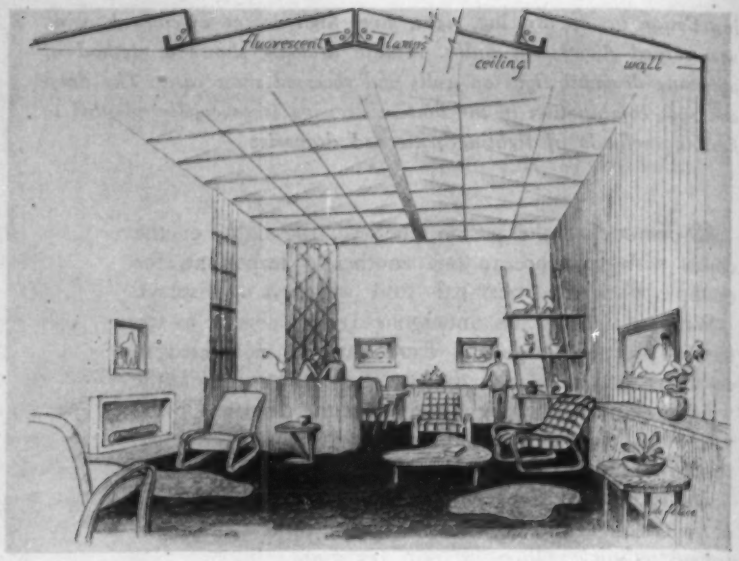
Eye Comfort

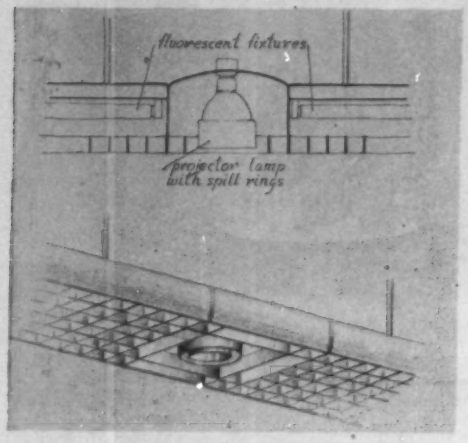
Eye comfort depends less on absolute quantities than on relationships among them. Though it is true that the eye can accept far higher levels than artificial light can practicably attain, yet fatigue can be caused by "too much" light just as easily as by "too little." Medical authorities do not feel that inadequate illumination is permanently deleterious to the eyes. Too often poor health on the part of the subject causes him to blame the lighting. The best test seems to lie in the continued pleasure of living under a given lighting effect.

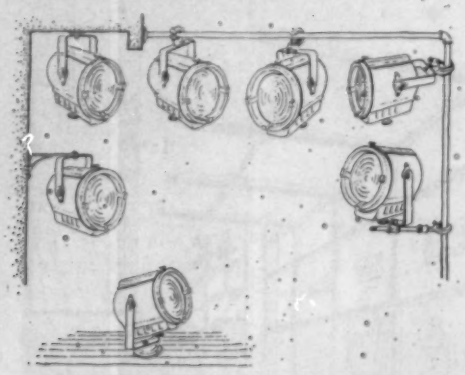
Courtesy Rambusch

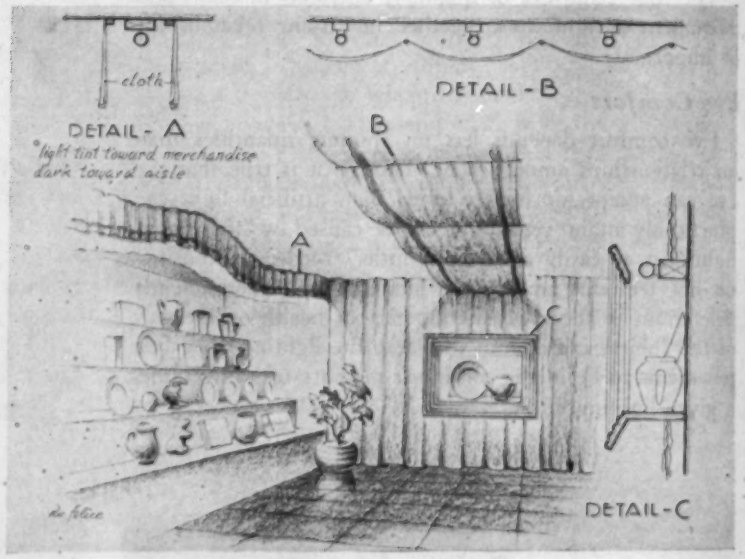
This jewelry-store installation by Morris Lapidus uses decorative but inobtrusive arrangement of droplights on long stems

Sketch, top right, shows an arrangement especially suited to lighting table tops without glare. Lower right sketch shows a very inexpensive installation yielding emphasis on the goods as well as general diffusion. Details show a combination fixture for incandescent and fluorescent bulbs, and a method of placing a pipe in a show window so as to support spots in a number of ways









Bright strong colors used over large areas tend to cause fatigue while tints approaching white seem to promote comfort. The contention that the color of light should approximate daylight for comfort is not authoritative.

The worst discomfort in artificial light can be caused by the glare of extreme contrasts in brightness. Many tests have proved that the eye can stand brightness contrasts, in fact benefits by them, in a range up to 1:100. But the extreme brightness contrast of an exposed light source is only slightly mitigated by increasing the distance between this source and the object viewed.

As a relief from the extreme contrast of small exposed sources, "indirect lighting" has become an ideal in the mind of the public. Yet in store lighting it dissipates the rays to the point of inefficiency, tends to "shadowlessness" (discussed under "distribution") and makes ceilings and walls the brightest areas in the field of vision. A better answer is, either to enlarge the source of light so as to spread a diminished brightness over more background, or else to conceal the source with screens or baffles. Again, fatigue is diminished by modulating so as to avoid extreme contrasts from one area to another, as for example between the floor and ceiling or between fixtures and aisles.

Composition and Atmosphere

Composition with light takes into account both visibility and comfort. Composition is the process of revealing things in proportion to their importance. The most obvious opportunities lie in the field of distribution, calling attention first to displays, then counters, then other customers. Movement in light in the narrow sense should be confined to displays but slow general changes should be possible by means of dimmers and switches, changing both color and brightness.

A certain "atmosphere" is required to foster the buying mood. Brightness bespeaks excitement and activity but can also be garish. Dimness may be gloomy but it is also an attribute of calm dignity, quiet and mystery. Warm colors are generally more pleasant than cool. Flat lighting is dull. Accents are dramatic. Fast movement connotes activity; slow connotes dignity, calm, and restfulness. These are generalities, often most tellingly illustrated in the exception.

The problem of merchandising with light is a responsibility which rests primarily upon the designer. It is he who must determine what kind of effect will get the best results. Every store gives him a fresh opportunity.

VERTICAL TRANSPORTATION AXIOMS

Things to do and not to do in department store practice

THE DAY is past when even a preliminary scheme for vertical transportation in department stores can wisely be prepared without detailed knowledge of the merchandising operation. Also, the investment involved is so great that it is imprudent to begin without consultation with equipment manufacturers who, in view of their responsibility, are happy to furnish all necessary data. Yet there are a few axioms that apply generally and are perhaps worth noting.

Density Factors

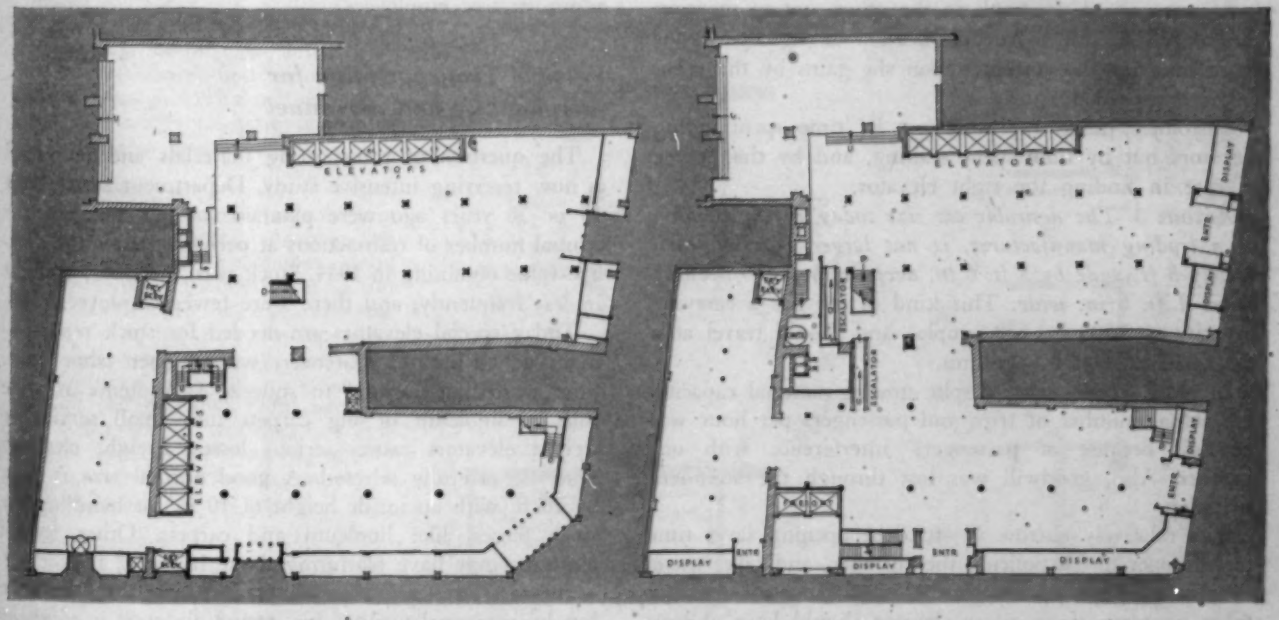
Computations start always with density ratios. A "density ratio" of 1:20 means that one person per hour can be carried to the floor in question for every 20 sq. ft. of net selling space. For example, an upper selling floor may have dimensions of 200 by 200 ft. Fixed equipment loses from 5 to 15 per cent of this space. Ignoring columns, this leaves 180,000 sq. ft. of net selling area. At a 1:20 density, there are then 9,000 persons to transport per hour. The actual number of elevators or escalators will then depend on further factors of a merchandising character, such as expected growth, traffic access to the store, past records of peak loads, the total number of floors, and special floor requirements.

Density ratios vary in general between 1:13 and 1:25, depending on the location, type of store, price range and character of merchandise, the extent of buying peaks, and other factors.

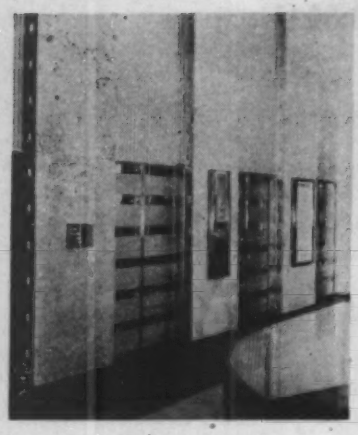
Distribution between elevators and escalators

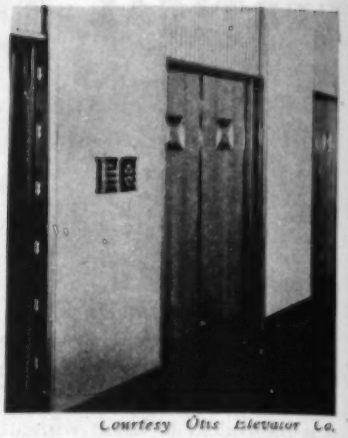
Every store of more than one floor must have some means of vertical transportation, and if the store has to carry more than 2,000 people per hour, escalators should be considered. Mail order stores and other chains occupying only two floors are among those most actively engaged in planning escalator installations today.

Generally speaking, escalators have application at the point where the store needs more than 4 elevators to handle the required traffic. Let us take the example of a small store starting with a building 100 by 100 ft., which yields an area of 20,000 sq. ft. on the second and third floors combined, or 18,000 sq. ft. net. If the owner were to install 4 elevators capable of handling 1400-1600 people per hour, he would be amply supplied to begin with, to serve a density of between 1:11 and 1:13. Yet later he acquires an L, and builds or rents a fourth floor, and otherwise expands. Before he knows it, his capacity is only 1 person per hour per 40 sq. ft. His elevator installation might have cost him $20,000 to $30,000 per unit, or $80,000 to $120,000 in all. Using 4 escalators instead (2 up and 2 down), his initial investment might have been higher at, say, $125,000; but the operating cost in labor terms would be much lower and, from the very beginning, his capacity, based on 4 ft.-wide escalators, would be 8,000 per hour, amply taking care of future expansion. These figures are very rough approximations but they illustrate the point.



BEFORE ***Remodeling for Gilchrist's, Boston, illustrates advanced practice. Six elevators, all in a single bank, replace the former split arrangement. Escalator is well placed. Freight elevator takes traffic off sidewalk. deYoung, Moscowitz and Rosenberg, architects*** **AFTER**





Courtesy Otis Elevator Co.

Visual and auditory signals should be at eye level (first floor and upper floors at Marshall Field's, Chicago). New escalators have handrail extending farther forward

Elevator Axioms

Although the placement of elevators is a complex problem that varies with every store, there are a few general axioms to be observed.

Axiom 1. No store, if it is possible at all, should have more than one group of elevators or elevator banks. If more than one group is installed, the weight of traffic is almost certain to fall unequally, in a ratio even less favorable than 60-40. The division is more likely to be 70-30, or even 90-10. Using fictitious figures, which nevertheless are more favorable than the existing condition in certain nationally known stores, we may find an example in which there are four scattered banks of elevators: one of 6, two of 4, and one of 5 elevators. The one group of 6 does more than 60 per cent of the work, and the other 13 do only 40 per cent, no matter how clever the management is in scheming for traffic diversion.

Axiom 2. No single bank should contain more than 6 elevators. If this number is exceeded, the walking distance from one end of the bank to the other, not to mention the confusion, due to the duplication of signals, wastes more time for the customer than she gains by the extra elevators provided.

Customers judge any store not by time spent riding elevators but by time spent waiting, and by the degree of ease in finding the right elevator.

Axiom 3. The desirable car size today, in the opinion of a leading manufacturer, is not larger than approximately 8 ft. wide by 5 ft. 6 in. deep, with center-opening doors, 4 ft. 6 in. wide. This kind of car has a carrying capacity of 3,500 lb. (20 people) and should travel at a car speed of 500 ft. per min.

In older, deeper cars, despite greater nominal capacity, the actual number of trips and passengers per hour was far less because of passengers' interference with one another. Also, goodwill was lost through the attendant irritation.

The relatively narrow 4½-ft. door opening saves time for the operator in policing the entrance, and saves travel time in the doors opening and closing. Since the operator takes up some space, every elevator should have at least a full 16-in. return panel. Full-width openings, despite their very efficient appearance, are wasters of time, electricity, and space in operation.

Escalator Pointers

1. *Two-way service has to be provided.* "What goes up must come down."

2. *Escalators are now to be considered for all selling floors,* not merely the first two. If the density is such as to warrant escalators at all, their use for all interfloor traffic releases elevators for efficient performance of their preferred function of express service.

3. *Escalators are now being installed above and below selling floors* for the use of employees in reaching lockers, restaurants, rest rooms. For example, in a store in Pittsburgh there was formerly trouble in getting upper-floor employees to use the 13th-floor restaurant; it was completely solved by installing escalators rising from the top selling floor. When a store in Chicago installed 2 escalators to a sub-basement locker room, it was possible without loss to eliminate 5 short-rise elevators. In this store, escalators now serve the 9 selling floors, and are being extended upward to the 10th floor also, to serve administrative employees.

Vertical Transportation for merchandise and personnel

The question of transporting materials and personnel is now receiving intensive study. Department stores built 15 or 20 years ago were planned for perhaps half the annual number of transactions at perhaps double the average value obtaining in 1944. Stock was, therefore, brought in less frequently, and there were fewer employees.

Today special elevators are needed for stock replenishment at all hours; moreover, with higher labor costs, time wasted attempting to squeeze such items as wide rolls of linoleum or big carpets into small service or freight elevators causes serious losses. Freight elevators must be carefully selected. A good normal size is 9 ft. by 20 ft. with an inside height of 10 ft. for handling the large pieces, like linoleum and carpets. Other freight elevators may have platforms about 10 by 12 ft.

Again, stores are beginning to realize that the time lost by personnel waiting for service elevators is company time; hence, provision of personnel elevators is not to be considered as a luxury to the employees but as a retriever of lost man-hours for the store.

ELEVATORS FOR DEPARTMENT STORES

Summary from Department Store Designs by Starrett and Van Vleck, Architects

TIME-SAVER STANDARDS
NOVEMBER 1944

Car

While many sizes of cars are available, the 8 ft. by 5 ft. 6 in. cab has proved to be one of the best elevators for department store use. The height is 10 ft. 8 in. from the floor to the cross heads (steel channels attached to the guide rails). The car has center opening doors. Capacity of the car is 3,500 to 4,000 pounds at a lift rate of 300 ft. to 550 ft. per minute. The car will carry 350 to 400 people per hour.

Pit

The pit will be about 4 ft. deep and equipped with spring buffers if a slow-speed car is used. High-speed cars will require 8 ft. to 10 ft. pits, will have oil buffers and an emergency exit. It will be well to check the local building codes for specific requirements.

Run-by

All shafts will be equipped with run-by rails above the top floor in order that the car may be stopped if it fails to halt there. The length of this run-by is a minimum of 3 ft. in the case of a slow-speed car, and 5 ft. for high-speed ones.

Sheave and Secondary Level

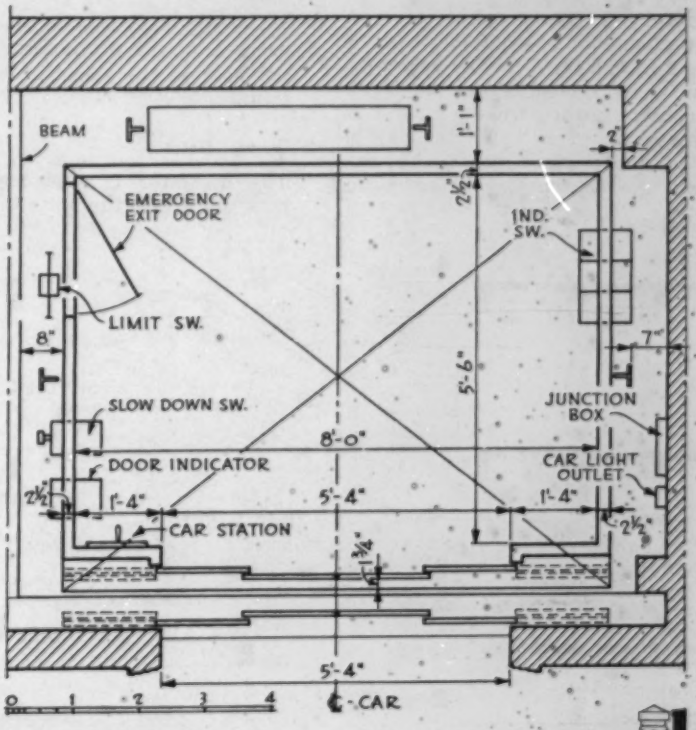
The sheave which guides the rope from the car to the counter weight may be below or on the same floor as the secondary level of the machine room. The secondary level contains the motor-generator sets, signal machines and/or control panels. In cases where roof space is available the secondary level may be omitted. A grating would be substituted under the sheave and the machine room lowered. The motor-generator sets would then be placed in the machine room.

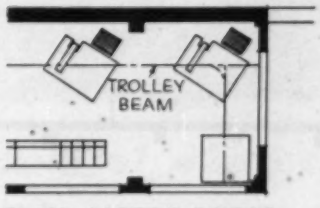
Machine Room

This area should be a minimum of 8 ft. in height. Besides the usual machinery, provision should be made for a trolley beam to run the full length of the elevator bank in order that repair parts may be lowered into the elevators. Trap doors should be provided between the machine room and the secondary level. Gratings and skylights of at least 4 sq. ft. should be provided for the dissipation of smoke in the case of fire.

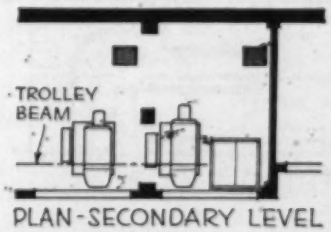
Freight Elevators

The 8 ft. by 10 ft. car is considered the most economical freight installation as the car will take most department store items.

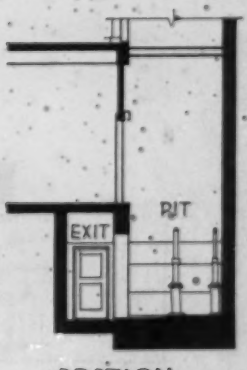




PLAN - MOTOR ROOM



PLAN - SECONDARY LEVEL



SECTION ELEVATOR SHAFT

PLAN AT ELEVATORS

TIME-SAVER STANDARDS

NOVEMBER 1944

ESCALATORS FOR DEPARTMENT STORES

Summary from Department Store Designs by Starrett and Van Vleck, Architects

Sizes

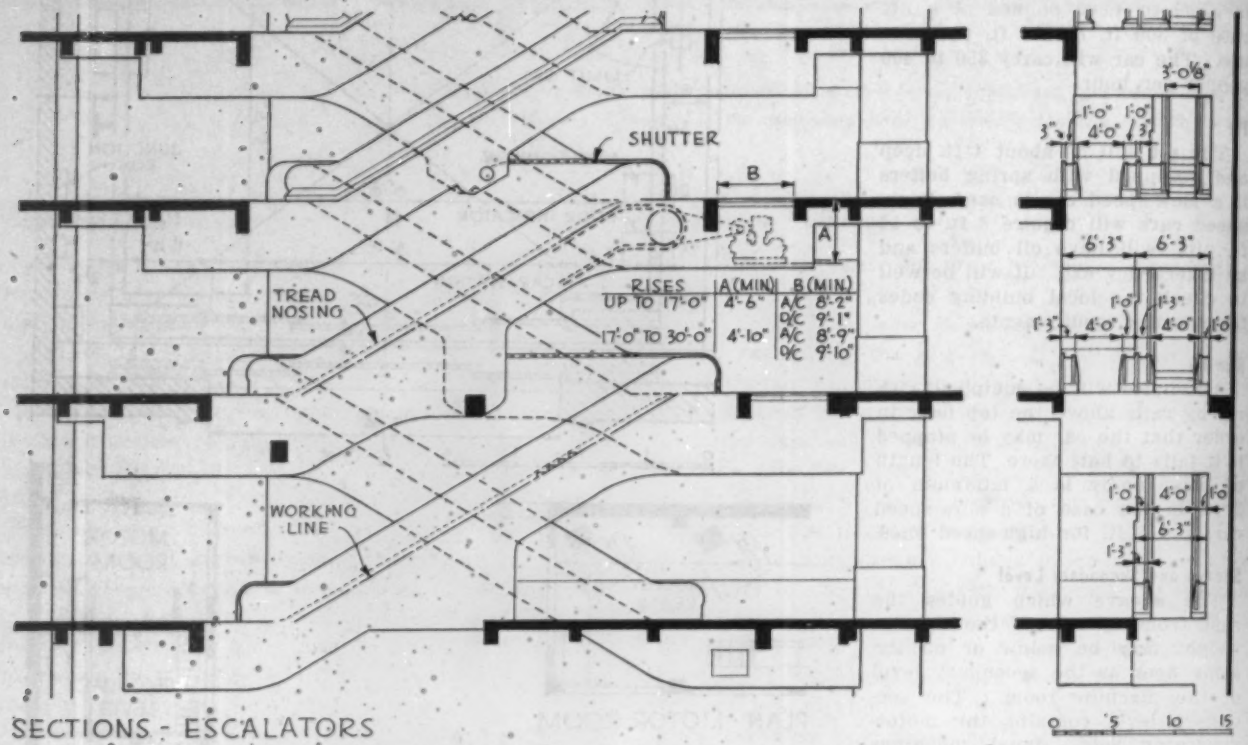
There are three widths of escalators generally available, the 2½ ft., 3 ft. and the 4 ft. The basement, first and second floors of a department store normally take 4 ft. escalators. The 3 ft. type may be used above these floors. In general, the 2½ ft. size is not being used.

Capacities

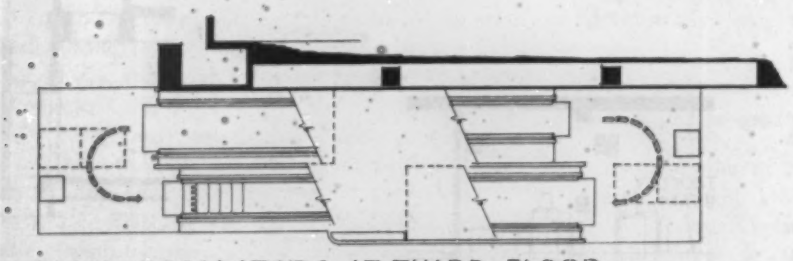
2½, 3 and 4 ft. wide escalators will carry 4, 6, and 8 thousand persons per hour at the speed of 90 ft. per minute.

General Notes

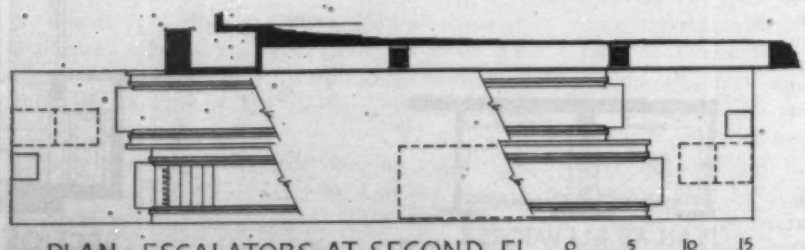
The escalator is supported on a truss built into the unit; this truss, in turn, is supported by the columns in the building construction. The parallel or scissors type of escalator will require the same amount of floor space. The length dimension may be found by multiplying the height between floors by 1¾ and adding 9 ft. The angle of elevation of all escalators is 30 degrees.



SECTIONS - ESCALATORS



PLAN - ESCALATORS AT THIRD FLOOR



PLAN - ESCALATORS AT SECOND FL. 0 5 10 15

Complete freedom of expression with . . .

SOUND-CONTROLLING SPRAYED "LIMPET"

This highly efficient acoustical treatment offers the added advantage of ready adaptability to any type of architectural design . . . from an ordinary office ceiling to an ornate church vaulting. Although Sprayed Limpet Asbestos has not been available for sound control purposes since the start of the war, because of its extensive use in the marine field, K&M hopes to resume activities in the acoustical field in the near future.

Sprayed "Limpet" requires no gadgets or mechanical devices when it is applied . . . creates no unsightly, geometric patterns. It is completely adaptable architecturally and, more than that, extremely light (weighing only 12 to 14 ounces per square foot, 1 inch thick). It can be painted repeatedly to produce any decorative effect desired without any appreciable loss of efficiency. By simply spraying "Limpet" over the surface to be treated, you can create rooms that are pleasing to both the eye and ear.

Below are some of the advantages of using K&M Sprayed "Limpet" Asbestos. For catalog giving more complete information, write us today.

No cutting or fitting—completely covers, completely insulates—no seams, no joints.

Easy to apply—sticks tight to any clean surface regardless of shape or composition.

High noise reduction coefficient of .70 for a ¾" thickness.

Fire-resistant and heat insulating—thermal conductivity 0.31 at 75°F.

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REQUIRED READING

PATRICK GEDDES

Maker of the Future. By Philip Boardman. Chapel Hill, N. C., the Univ. of North Carolina Press, 1944. 6⅛ by 9¼ in. xv + 504 pp. illus. $5.00.

From the viewpoint of the architect and the city planner this splendid book may be a disappointment. Patrick Geddes, botanist and city planner, educator, philosopher, social worker, historian, relives in the many pages of Dr. Boardman's biography; but the work of Patrick Geddes in the field with which we are most concerned is perforce too sketchily treated for our full satisfaction. That is not the biographer's fault, but the subject's: no life as long and full and varied as Geddes' could possibly be dealt with to everyone's satisfaction in less than a dozen volumes.

The influence of Geddes on city planning, Dr. Boardman says, has already been widely felt, having "permeated towns, villages, and countrysides in opposite corners of the earth, from Palestine to the United States, from Ceylon and India to Great Britain and Ireland, to Norway and other lands both East and West. . . . Bold statement though it is, one can nevertheless assert that wherever a plan is drawn up studying the present and future needs of city or hamlet in terms of place, folk, and the work they do, and in terms of relations to the surrounding region, there is the hand and brain of Patrick Geddes."

Thoroughly practical and not afraid to practice what he preached, Geddes took his bride of a year to live in one of the worst slum districts of Edinburgh. Together they started out to do what they could to clean things up. Their own tenement flat, three long dark flights up, they made into "an oasis of light and cleanliness"; their neighbors' flats by their persuasion, example and help were also cleaned up and made more attractive with window boxes and distemper washes; finally public officials were hounded by the indefatigable Geddes until they removed the "century-old accumulation of rubbish from James Court and other closes."

"Through his personal labor," Dr. Boardman says, "through the wider activities of his brain-child, the Edinburgh Social Union, and through his irresistible crusading, a movement for the cleaning up of Old Edinburgh took firm root. Out of this cleaning came new buildings, new ideas, and new institutions: a Geddesian imprint on the Scottish capital that grew stronger year by year."

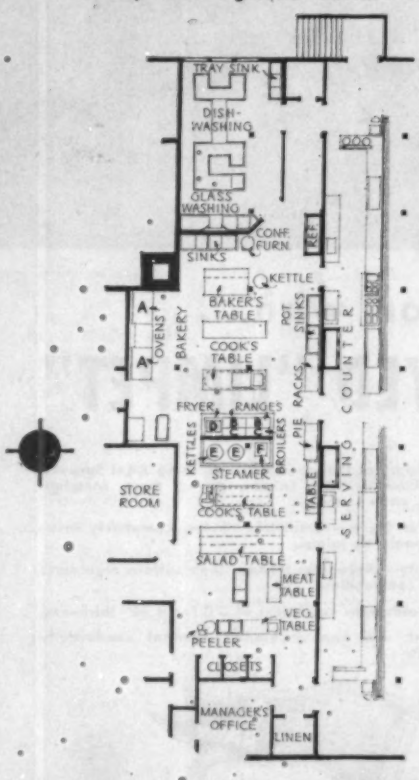
Such was the beginning. Next came his famous Edinburgh Room at London's Town Planning Exhibition of 1910. Here, with the help of Frank Mears, a young architect, Geddes assembled postcards, diagrams, newspaper clippings, models, maps, etc., which added up to a "comprehensive exhibit of the geology, history, economic life, architecture, housing conditions, etc., of Edinburgh." This, the following year, Geddes enlarged into a "Cities and Town Planning Exhibition," which consisted of "representations of cities from ancient times to modern." Opening at Crosby Hall, Chelsea, the Cities Exhibition within the next two years toured Edinburgh, Dublin, Belfast and Ghent, was sunk by a German submarine on the way to Madras, and subsequently reassembled.

"Town-planning is not mere Place-planning," Geddes wrote in the Madras reports, "nor even Work-planning. To be successful it must also be Folk-planning. . . . We must not coerce people to move against their wishes and interests but find the right

(Continued on page 114)

KITCHEN PLAN NO. 17: Seventeenth of a series of successful mass-feeding kitchen plans.

Designed to serve 4,000 meals, this kitchen in a recreation building in Washington, D. C., makes full use of the "specialized cooking tool" idea.



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- (b) 2 Hot-top ranges
- (c) 2 Salamander broilers
- (d) 1 Fryer
- (e) 2 Stock kettles
- (f) 1 Vegetable steamer

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REQUIRED READING (Continued from page 112)

places for each sort of people, places where they will really flourish."

The main picture that this book gives of Geddes as a city planner is his thoroughness of analysis. He left no stone unturned in his surveys, no aspect unconsidered in his plans. In Tel Aviv today, in Dublin, in many far flung corners of the world, the Geddesian foundations are being built upon. How firm those foundations were, we are now beginning to realize.

TOWARD A POSTWAR HOUSING PROGRAM

Washington, D. C. (815 Fifteenth St., N. W.), The Producers' Council, Inc., 1944. 8½ by 11 in. 98 pp. mult. $1.00.

This report, prepared by Frederick M. Babcock, vice general chairman of the Council's Postwar Committee, "is designed to provide a point of departure for discussion leading toward the determination of the position which business enterprise should assume with respect to the solution of housing problems in the postwar era." In general it follows the line of the Council's postwar construction platform announced almost a year ago (see ARCHITECTURAL RECORD, Dec., 1943, p. 7).

Subjects covered in the report include the organization and functions of the several housing agencies; financing home ownership, rental housing, and maintenance and repair; public housing; development of cities. Specific recommendations and statements of policy are marked in the text and summarized at the end of the book. Most of these are already familiar through the Council's news releases, and the chief value of this report lies in its completeness of coverage.

THE TECHNIQUE OF THE TERRAIN

Maps and Their Use in the Field in Peace and War. By H. A. Musham. New York (330 W. 42nd St.), Reinhold Publishing Corp., 1944. 6⅛ by 9¼ in. viii + 228 pp. illus. $3.85.

Intended primarily for Army and Navy personnel, civilian surveyors, etc., this book will prove useful also to city planners and others concerned with land problems. For despite its highly technical nature, and the completeness of its treatment (there is even a chapter on direction), it is so simply written as to be easily understood by all.

Worth special mention here are the chapters on drafting, conventional signs, scales and aerial photography.

HANDBOOK OF MAP SYMBOLS

Albany, N. Y., Department of Commerce, State of New York, 1944. 7¾ by 10⅝ in. viii + 36 pp. illus.

"This Handbook was compiled," the introduction says, "to serve as a reference list of essential symbols needed as designations on maps of zoning and land use, population density, transportation routes and the like." Apart from the introduction, a list of references, and a fine index, the booklet consists solely of reproductions of standard map symbols in wide use. The reproductions are large enough to be easily studied and identified. There is plenty of room here and there for the addition of other symbols, or the writing in of helpful notes.

PILE-DRIVING HANDBOOK

By Robert D. Chellis. New York 19 (2 W. 45th St.), Pitman Publishing Corp., 1941. 5½ by 8¼ in. xiv + 276 pp. illus. $4.50.

"The object of this handbook," Mr. Chellis says in his preface, "is to provide ready information for use in designing and driving pile foundations. The scope has been definitely limited with this aim in view, in order to facilitate this purpose. A detailed discussion

(Continued on page 116)

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The control factor in practicality of design and realistic accomplishment lies with the architect . . . skillful conception that combines structural strength, maximum serviceability and pleasing appearance.

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of the numerous types of foundations (other than those consisting of piles) and descriptions of methods of sampling soils, etc., have not been included at this time. While these matters are of great allied interest, information regarding them is available elsewhere."

Highly technical and difficult though the subject matter is, it is presented in a style so simple and direct that at no point is clarity lacking. Where possibly unfamiliar technical terms are used, they are promptly defined in layman's language. Sentences are kept short and uninvolved. In other words, Mr. Chellis has succeeded in his aim to provide "ready information."

Subjects covered include development and use of pile-driving formulas, selection of driving equipment and of pile types, methods of driving, types of concrete piles, deterioration and preservation of piles. The appendix fully covers standard specifications and lists the information which should be contained in specifications or invitations for bids. Bibliography and index are exhaustive.

MANUAL OF POSTWAR PLANNING

For Cities and Towns in Rhode Island. Providence 2, R. I. (1405 Industrial Trust Bldg.), R. I. State Planning Bd., 1944. 6 by 9 in. 40 pp.

Here is a practical guide to planning which should be welcomed by agencies both large and small everywhere. With no wasted words it outlines the purpose and duties of the various branches of a state-wide postwar planning organization: the central authority and its committees and sub-committees on public works, zoning and land use, housing, private enterprise, and so on. In each case the scope of the committee's activities is given, its membership indicated, and its methods of functioning sketched.

SEAMLESS STEEL TUBE DATA

Pittsburgh, Pa. (Gulf Bldg.). Seamless Steel Tube Institute, 1944. 9 by 11½ in. loose leaf. $2.50.

Here is a data book addressed to manufacturers and users of equipment employing carbon-steel and alloy tubing, but highly useful as a reference book. It is divided into six sections: (1) General Data; (2) Mechanical Tubing; (3) Pressure Tubing; (4) Reference Tables; (5) Glossary; (6) Index.

PERIODICAL LITERATURE

THAT POSTWAR HOUSE

By Wells I. Bennett. Detroit 26, Mich. (120 Madison Ave.), Weekly Bulletin, Michigan Society of Architects, Sept. 26, 1944, pp. 1, 4-8. Reprinted from the Michigan Alumnus.

The Dean of the College of Architecture and Design in the University of Michigan has no illusions as to what the general public wants in a postwar house. "They will expect a better than prewar house," he says, "and they will expect it to cost less than $10,000, and preferably less than $5,000. As their ideas crystallize, they will become more concerned with prime needs and less preoccupied with gadgets."

Toward better building values, therefore, he recommends four forms of aid: (1) the lowering of the rate of interest on building money; (2) the realization of practical, money-saving improvements in building techniques; (3) keeping the cost of site in its place as a modest proportion of the whole cost, and insuring its inclusion of all utilities; (4) achieving economies by making the house simpler and smaller.

(Continued on page 132)

ONE FACTORY MAN TELLS ANOTHER:
Say Tom, it was a lucky day for us when that heating contractor persuaded the boss to install those Wing Revolving Heaters. Remember how we all had to work with our coats on during the winter?
Do I? And how production slowed up? It was too darn cold to work. Fred, I'll bet a hat the increase in production for next winter alone will almost pay for the installation of these new heaters.
You're right Tom. That heating contractor sure knew what he was talking about.
(Left) Cross-section through heater showing motor, fan, heating section and revolving discharge outlets.

WING *Revolving* HEATERS

ELIMINATE HOT SPOTS AND COLD SPOTS

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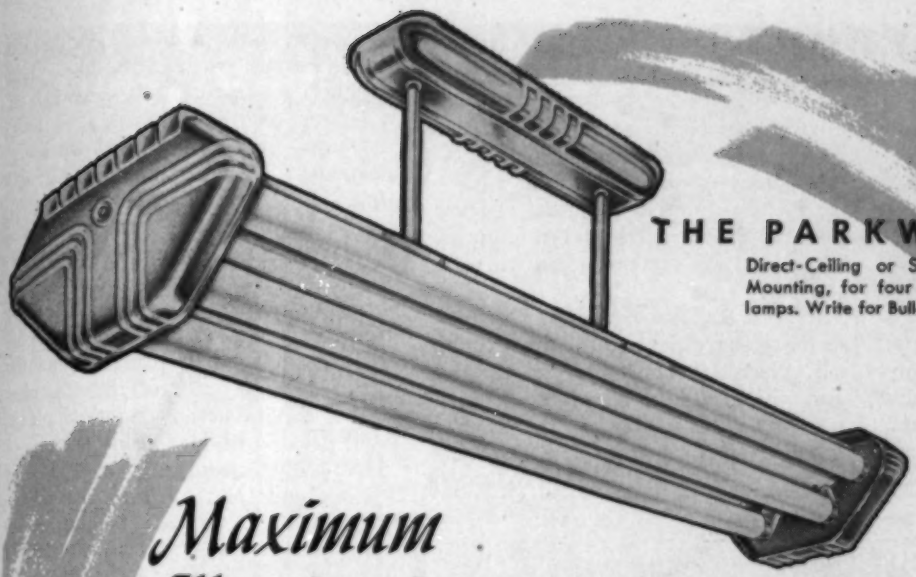

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The PARKWAY is an open-type fixture, with die-formed ends finished in baked lustre aluminum enamel. Accessible for easy, quick cleaning—lamps removable without disturbing ends.

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All reflecting surfaces and louvers are finished in baked SUPER-WHITE enamel... Both types are complete with all necessary fittings, ready for quick installation.

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 (Continued from page 10)

to raise ceilings at which new homes may be sold. To OPA, this point of view is just one more instance of an argument pressed upon it continually: producers always stress that their output would rise on higher prices.

Community Memorials

Although OCR gives little weight to early postwar public building, men in other agencies look for a boom in community war memorials. The boom, they think, will be inspired by varying mixtures of patriotic sentiment, community spirit and business interest. A strong movement is developing to create useful memorials—e.g., the schools, playgrounds, etc., which communities want anyway—rather than mere statuary.

Federal Security Agency is prepared to make suggestions to the town councils, chambers of commerce, mayors and others thinking about "functional" memorials. It is drawing up sketches showing what rooms a community center needs, how a town gymnasium should be laid out, and the like. The sketches are mere hints—answers to questions of the sort raised at local meetings. They do not lay down specifications; the local architect will do that.

The Aeronautical Chamber of Commerce is launching a drive to build memorial parks around airports. The airports would not be designed for big transcontinental systems but for people who buy small planes to handle themselves. Theory of the Chamber is that the marketing of family planes will grow with the construction of ports. By building memorial air "parks"—the port facilities plus lawns, playgrounds, restaurant, lagoon, etc.—the plane junction will become more popular.

Airport Construction

The Chamber looks for gradual rather than speedy success. In the first postwar year, sales of personal planes are estimated from 10,000 to 20,000 so that not many communities will be thinking of airports. The idea of the Chamber is to get port construction started first; given the ports, people would buy the planes. Various local business interests are being inspired to lead the drives.

Given port facilities costing $25,000, memorial parks may be constructed around them up to $500,000. There are bold and attractive layouts which make spending money seem pleasantly businesslike. Several communities already have started, raising the cash in the usual ways. Construction of air-parks will affect surrounding building since the approach of aircraft cannot be hindered by jutting skyscrapers. In collaboration with the Civil Aeronautics Board, state air-commissioners now are trying to work out uniform zone laws.

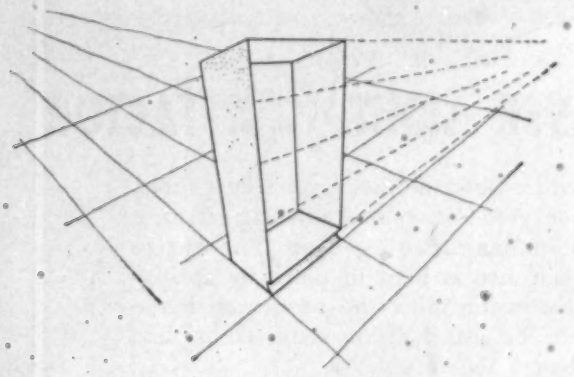
Capitol Hill lies in the sleepy haze that always precedes a presidential election. Staff members of the Taft subcommittee on housing are just about completing the compilation of opinion on postwar building, but have not been able to submit it to committee members who are off campaigning. They want to schedule about two weeks of hearings on particular topics—NHA, market prospects, etc.—for sometime in January.

◆ ◆ ◆

LUMBER FORECAST

Predictions that a normal lumber supply for peacetime uses cannot be expected within a period of less than four or possibly five years after the war are unfounded, Wilson Compton, secretary and manager, National Lum-

(Continued on page 120)



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We believe that standard equipment for selling has the same application as elevators, escalators, cash registers or any other unitized system—that such unitized equipment can be integrated with room design without detracting from the individuality reflected in that design.

The interest of the architect in the application of our products to his designs is solicited.

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"They breathe a SPECIAL kind of air," said Mr. Jordan

Peering out from a fog bank, Mr. Jordan directed his companion's attention to the vast panorama which is America. He was breaking in a new man for the celestial "milk run".

"Observe," said Mr. Jordan, "the teeming cities, the steel skyscrapers, the rushing rivers and towering mountain peaks, the millions of fertile acres and the miles and miles of grain . . . all of this pulsating civilization is America.

"But you must not imagine that only the bounty of Nature makes this country great. It's a special kind of air the people breathe—*the invigorating air of Liberty*. When people of other countries heard about this wonderful air they came to America in droves, bringing age-old skills with them, merging in the crucible of America to become Americans—all!"

In just 5 years it will be a century since A. W. Faber brought to America priceless skills in the craftsmanship of pencils . . . . . skills that date back to 1761 in an older world . . . . . skills that have blossomed like the bayrum tree in the fertile land of America. Today the name of A. W. Faber has a significance to everyone who uses pencils, erasers and rubber bands. To every architect, engineer and designer—yes, even to schoolboys and schoolgirls. We are proud of the tradition and prestige that is associated with A. W. Faber. We are prouder of being . . . . . AMERICAN!

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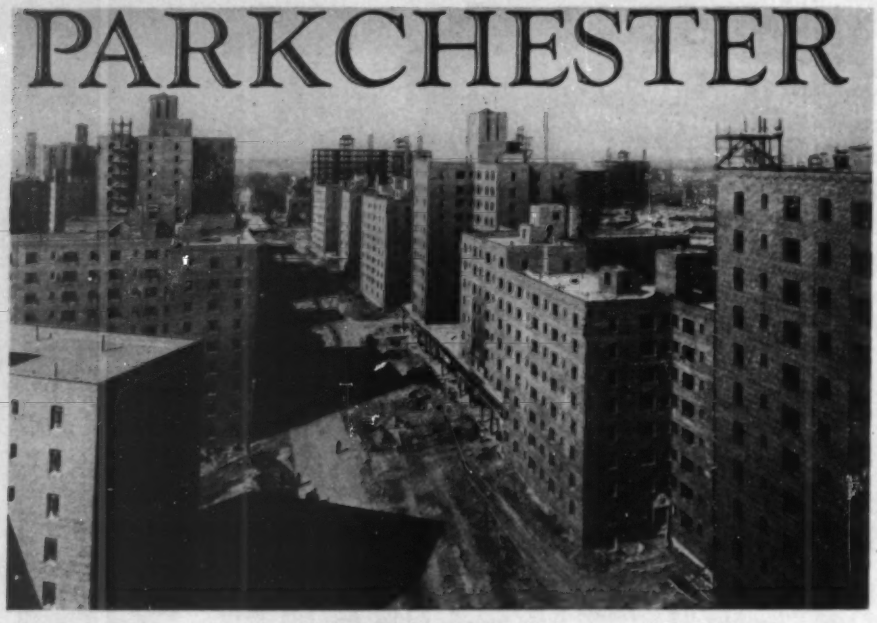
ber Manufacturers Association, told the annual meeting of the North Atlantic Section, American Society of Agricultural Engineers recently.

"There will not be an adequate supply of *seasoned* lumber immediately after the war," Mr. Compton said; "and it will be beneficial to both producers and consumers if the sawmills and the distributors are enabled to restore well-assorted inventories of dry lumber. But it takes only a few days to kiln-dry ordinary building lumber and the dry kiln capacity of the lumber industry can, if necessary, turn out about 50 million board feet of lumber a day. That is nearly 15 billion feet a year. Another 50 million feet of daily production can be piled for open air-seasoning. This ordinarily takes from four to six months . . .

"There is no reason that normal supply of lumber properly manufactured, seasoned, refined and graded should not be generally available within a year from the war's end."

PARKCHESTER



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ALL CALKED WITH PECORA

Parkchester, with its 66,000 window frames sealed weather-tight with Pecora Calking Compound, is but one of a host of nationally known building projects in which this dependable material has been used. Leading Architects and Builders have found it equally advantageous to use Pecora Calking Compound in structures of modest size to assure these three important results: (1) To permanently seal joints against moisture and dust infiltration; (2) To prevent drafts; and (3) To reduce fuel bills.

Pecora Calking Compound is composed of highest quality elastic oils and gums under a formula originated in 1908. It is impervious to heat, cold, moisture or acid fumes. It will not dry out, crack or chip when properly applied.

Write for Folder and Prices

PECORA
PAINT COMPANY, Inc.
2nd Street & Erie Avenue, Philadelphia 40, Pa.
Established 1862 by Smith Bowen

ALSO MORTAR STAINS • SASH PUTTIES • ROOF COATING • PECOMASTICS

RECONVERSION PROGRAM

Immediate steps for reconversion of the construction industry to peacetime production have been urged upon the WPB by the Recommendations Committee of the National Committee on Housing. Four points for action are specified:

1. Authorization now of all construction that does not interfere with the war effort.

2. Permission of immediate resumption of manufacture of building materials and equipment so as to retool and restock the construction industry to enable it to go to work promptly after VE-Day.

3. Elimination of all restrictions as soon as warranted by diminishing demands of war production for materials and labor.

4. Information to the nation that these steps carry permission again to build with high standards of design and quality.

TO PROMOTE HOUSING CONSTRUCTION

Formation of Precision-Built Homes Corp., an organization devoted exclusively to promoting housing construction, has been announced by F. Vaux Wilson, Jr., vice president of Homosote Co., and president of the new corporation.

Financed largely by contractors, dealers in building supplies and others engaged in various branches of the housing industry in all parts of the United States, the company's functions will be to merchandise houses directly, to license constructor-builders and to engage in research, servicing and mass purchasing.

The company will merchandise houses in three ways: (1) through department and furniture stores; (2) to operative builders, lumber dealers, contractors, realtors, insurance companies, lending institutions, prefabricators and industrial companies for employees; (3) through the export market.

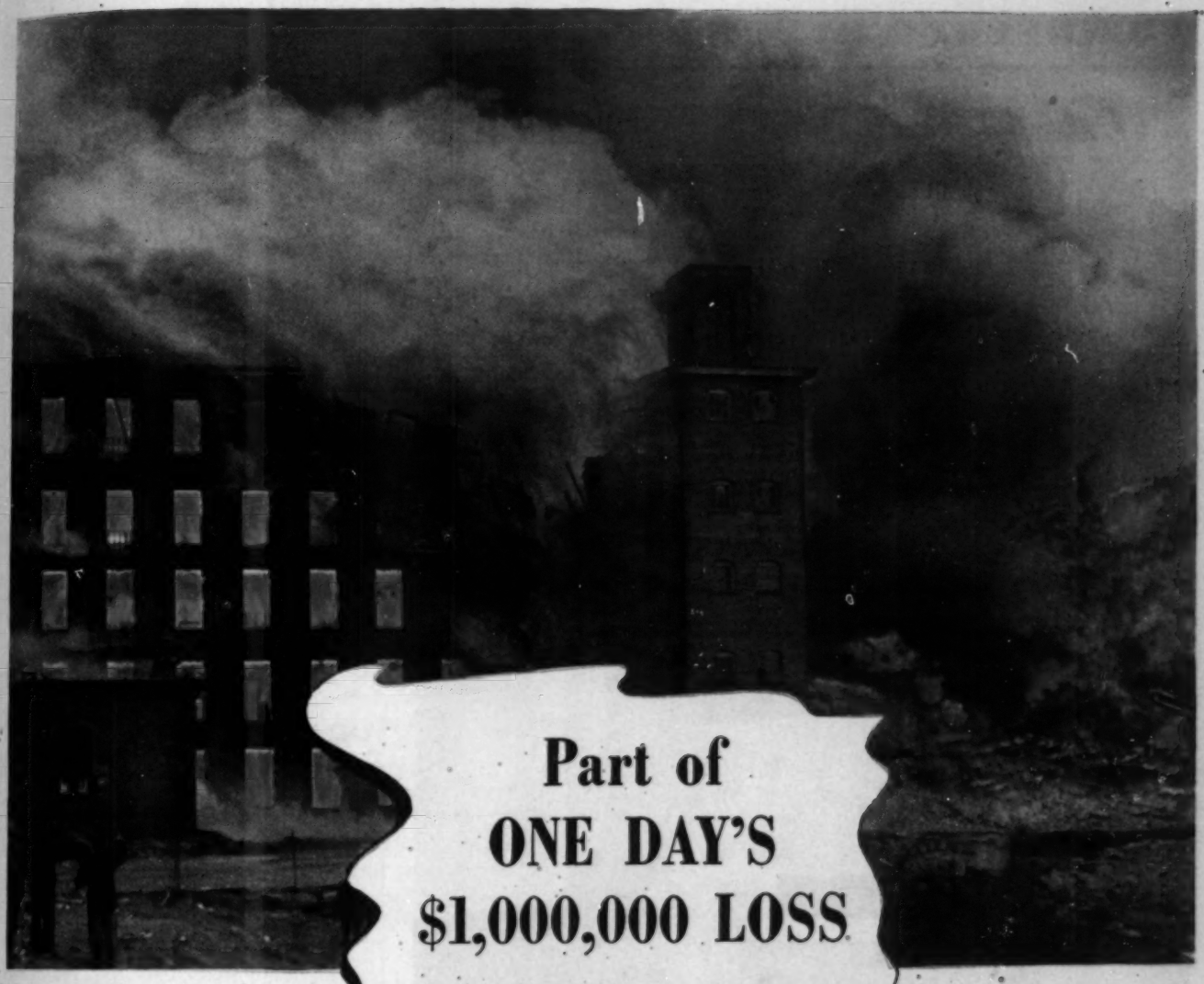
Explaining the new organization, Mr. Wilson said that the licensed constructor-builders will set up fabricating plants in the major centers to service department and furniture store customers as well as others. These fabricating plants, he said, will normally operate in a 75 mile radius.

WPB NOTES

Building Service Equipment

Any piece of building service equipment authorized or rated by the WPB on a special application form, or any piece of processing or service machinery or equipment whether or not specifically approved, may now be installed in

(Continued on page 122)



Part of ONE DAY'S $1,000,000 LOSS

ONE MILLION DOLLARS A DAY in property losses is the toll we in America are paying because of carelessness and oversight in guarding against the most common hazard of business – fire. Indirect losses of inestimable value accompany these property losses.

TODAY IS NOT TOO SOON to take stock of your own protection. Are you working on a round-the-clock schedule with little time for "housekeeping"? Are you using new inflammable materials? Has carelessness increased with stepped-up employment? Can you honestly say you are protected against fire? Remember – no amount of insurance will save buildings or their valuable contents.

FIRE CAN BE CONTROLLED. There is one way, a *proved* way, of checking this needless destruction, *at the source, when it starts* . . . a Grinnell Automatic Sprinkler System. During the past ten years, over 8000 fires in Grinnell-protected buildings have put themselves out before major damage could occur.

• • •

See that your buildings have this 24-hour-a-day safeguard before fire strikes. Experienced Grinnell engineers will help you plan dependable protection. Get in touch with them . . . write or call your nearby Grinnell office.

Grinnell Company, Inc.
Executive Offices, Providence 1, R. I.
Branch offices in principal cities

SPRINKLERS SAVED THIS BUSINESS

"A flash fire of coal dust occurred at our Irwin Mill. The fire was controlled through sprinkler operation until the arrival of the local fire department. This plant was engaged in making products used exclusively in essential industry serving the war effort. We were able to resume operations within a few days. Without sprinkler protection there is no telling what damage might have been done to our machinery and equipment which would have taken a very long time to replace under existing conditions."

JAMES H. WHITEHEAD
PENN-RILLTON COMPANY
New York, N. Y.

GRINNELL

AUTOMATIC SPRINKLERS

For Production Protection

THE RECORD REPORTS (Continued from page 120)

an existing building without permission under Conservation Order L-41, regardless of cost limits. This action is taken by amendments to Conservation Order L-41 and Direction 2 of that order.

Direction 2, as amended, provides that it is not necessary to get WPB permission under L-41 to install or relocate in an existing building any piece of processing or service machinery or equipment regardless of the total cost of the job. The direction also permits the installation of building service equipment such as plumbing, heating, lighting, air conditioning equipment, elevators or escalators, regardless of the total cost of the job if the equipment has been authorized or rated on a special application form.

Metals in Lighting Fixtures

Restrictions on the use of metals in utility type incandescent lighting fixtures have been removed from Order L-212 and minor relaxations affecting other types of incandescent lighting fixtures have been made.

Utility fixtures under Order L-212 are subject only to the provision requiring a preference rating on sales. Residential fixtures may be sold without ratings.

BARBER-COLMAN

RADIO STATION
WTMJ W55M
MILWAUKEE

Shown above is one studio in Milwaukee's million-dollar Radio City. Throughout this up-to-date station VENTURI-FLO Ceiling Outlets are fulfilling the exacting requirements of providing draftless air disribution at extremely low noise levels.

Venturi-flo
CEILING OUTLETS FOR GUARANTEED AIR DISTRIBUTION

Data based on complete tests enable us to recommend exactly the right outlet for any condition and GUARANTEE results. You are assured of uniform, properly diffused air of the desired temperature at specified level, with required air movement and elimination of hot, cold, or drafty areas. Use ENGINEERED AIR DISTRIBUTION — see your Barber-Colman representative.

BARBER-COLMAN COMPANY
1232 ROCK STREET • ROCKFORD, ILLINOIS

NHA NOTES

Home Repair Prospects Loom

The task of putting the nation's 37,500,000 homes, neglected of necessity during the war, back in a state of good repair will be the Number One job of financial institutions and the allied building industries in the immediate post-victory period, FHA Commissioner Abner H. Ferguson told the Morris Plan Bankers Association recently.

The job to be done, he declared, has assumed "tremendous proportions and obviously will at first take precedence over the rest of the housing field, even new construction, as important as that is."

Negro Housing

The willingness of private capital to enter the field of building homes for Negroes has been cited by NHA Administrator John B. Blandford, Jr., as a long step forward toward a solution of the housing problem for Negroes.

Speaking before the Annual Conference of the National Urban League in Columbus, Ohio, Mr. Blandford reported that some 17,000 privately-financed accommodations for non-white families will be made available under the NHA's war housing program. As of September, he said, 4,800 of these had been completed and nearly 10,000 others were under construction.

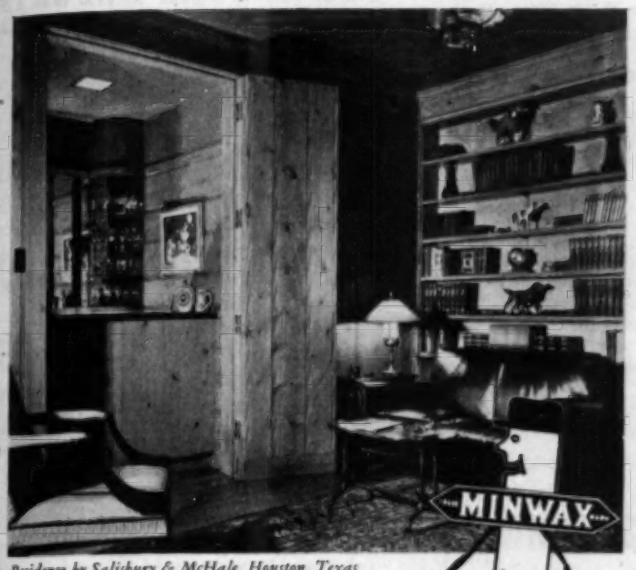
War Housing Conversion

A utility building, one possible solution to the conversion problem of the government's temporary war housing, has been set up for inspection at the McLean Gardens housing project in Washington by the FPHA.

The structure is 20 by 40 ft., with pitched roof and windows, constructed entirely from materials taken from a standard-construction two-story building of 12 family units at Wilmington, Del. Each 12-unit building can be converted into four such utility buildings.

Suggested uses for the converted structure include storage houses, tool sheds, chicken houses and other farm utility buildings, bunk houses for construction workers or migrant farm workers, mess halls, sanitary facilities, emergency clinics and emergency shelters.

(Continued on page 124)



Residence by Salisbury & McHale, Houston, Texas

MINWAX WOOD FINISHES enhance the true, *natural* beauty of wood

THIS is the first and most fundamental reason why MINWAX Wood Finishes assure *owner satisfaction.* MINWAX produces this result because it is a *penetrative* stainwax finish. It becomes truly part of the wood, bringing out the natural charm and beauty of the texture and imparting the soft lustre of a wax polish without artificiality.

For the same reason, namely, that it is a *penetrative* finish and not a surface treatment, MINWAX provides additional advantages to the owner:

- **The finish can't chip off, scratch or mar.**
- **MINWAXED wood floors never need re-scraping.**
- **Worn spots can readily be restored by a simple application of more MINWAX.**
- **The finish improves with age and simple care, each polishing enriching the beauty of the wood.**

These advantages are proved by 30 years of service to architects, and identify MINWAX as the type of wood finish that will produce the better results owners are expecting in the post-war period. For further information, see SWEET'S—or write to MINWAX Co., 11 West 42nd Street, New York 18, N. Y.

For the 27th consecutive year our COMPLETE CATALOG IS IN SWEET'S

BUY BONDS — MORE THAN BEFORE

TRADE MINWAX MARK

WOOD FINISHES

Floors • Paneling • Trim

OTHER MINWAX PRODUCTS

Waterproofings • Dampproofings • Caulkings • Protective Coatings

YOU ASK FOR IT!

By watching him draw one line, a Chief knows the extent of a draftsman's skill.

By drawing one line with a Typhonite Eldorado pencil, *you* will know how well-deserved is the fame of this great drawing tool.

Eldorado offers you:

Smooth responsiveness
Opacity of line
Uniformity and accuracy of grading
Strong leads

These fine qualities have given Dixon's Typhonite Eldorado first place in the minds—and hands—of America's draftsmen.

So ask for it.

Just fill in and mail the coupon below. A sample will convince you that you should ask for it for your work.

TYPHONITE

ELDORADO

Pencil Sales Dept. 225-J11
Joseph Dixon Crucible Co., Jersey City 3, N. J.

Gentlemen:

Please send me a free "Comparison Sample" of Typhonite Eldorado drawing pencil in ..... degree.

Name .....

Address .....

City ..... State .....

WANTED, ARCHITECTS: For permanent connection with a growing mid-western engineering office that has been in business over twenty years.

Good working conditions, time and one-half for over forty hours per week, and two weeks vacation.

All applicants must be able to comply with War Manpower Commission regulations. Give full details as to experience and salary desired in first letter.

Box 24, ARCHITECTURAL RECORD, *119 West 40th Street, New York 18, N. Y.*

SITUATIONS WANTED

ASSOCIATION with active architectural firm interested in expansion and integration of postwar work wanted by two Licensed Professional Engineers located in New York City. Both are thoroughly competent designers and executives with combined experience in steel, concrete structures and bridges, housing and city planning. Out-of-town firm considered. Funds for expansion available.

Box 20, ARCHITECTURAL RECORD, *119 West 40th Street, New York 18, N. Y.*

ARCHITECTURAL DESIGNER, gentile American, with extensive diversified experience and excellent contacts, wishes to sublet space in New York City architect's office. Will assist architect if and when desired and engage architect as consultant on large work.

Box 22, ARCHITECTURAL RECORD, *119 West 40th Street, New York 18, N. Y.*

FIGHT INFANTILE PARALYSIS

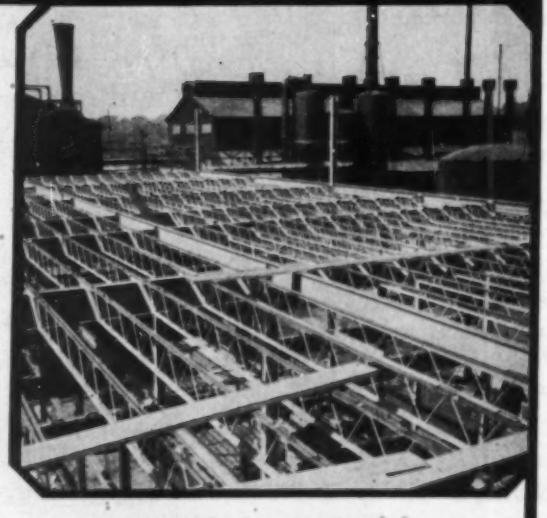
KEEP AMERICA STRONG

JOIN the MARCH of DIMES

JANUARY 14-31

STEEL JOISTS

FOR CURRENT CONSTRUCTION and POST-WAR PROJECTS



AVAILABLE NOW for Use in Floors, Roofs, and as Roof Purlins, Steel Joist Construction is

- ECONOMICAL
- LIGHT WEIGHT
- VERSATILE
- EFFICIENT
- PERMANENT
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- FACTORIES
- HANGARS
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- THEATRES
- CHURCHES
- RESIDENCES

LACLEDE STEEL COMPANY

GENERAL OFFICES ARCADE BUILDING ST. LOUIS, MISSOURI

THE RECORD REPORTS

(Continued from page 122)

APPOINTMENTS

M.I.T. Director of Libraries

Creation of a new post, Director of Libraries, at the Massachusetts Institute of Technology, and appointment of Professor John E. Burchard, now Director of the Bemis Foundation, to this post has been announced.

Dr. Burchard was graduated from M.I.T. with the degree of bachelor of science in architectural engineering in 1923, and received the master of science in the same field in 1925.

Housing Research Director

The appointment of Howard P. Vermilya as Director of Housing Research has been announced by J. F. O'Brien, general manager of the John B. Pierce Foundation.

Mr. Vermilya, member of the American Institute of Architects, has been connected with the Federal Housing Administration as technical director for the past 10 years.

NEW OFFICES

Offices Reopened

The following architects have announced reopening of their offices:

Morton T. Ironmonger, at 1704 N. E. 1st St., Fort Lauderdale, Fla.

William A. Stone, at 1507 American National Bank Bldg., Kalamazoo, Mich.

B. H. Whinston, at 465 Lexington Ave., New York 17, N. Y.

Mario Corbett, Shreve Bldg., San Francisco, Cal.

Offices Opened

Newly opened architectural offices include:

John Franklin Adams, at 500 Rogers Bldg., 218 W. Church St., Jacksonville 2, Fla.

William S. Schneider, A.I.A., at 5920 W. North Ave., Milwaukee, Wis.

Changes of Address

The following new addresses have been announced:

Robert Gruen Associates, industrial designers, 509 Madison Ave., New York 22, N. Y.

J. W. Griess, 755 Boylston St., Room 201, Boston 16, Mass.

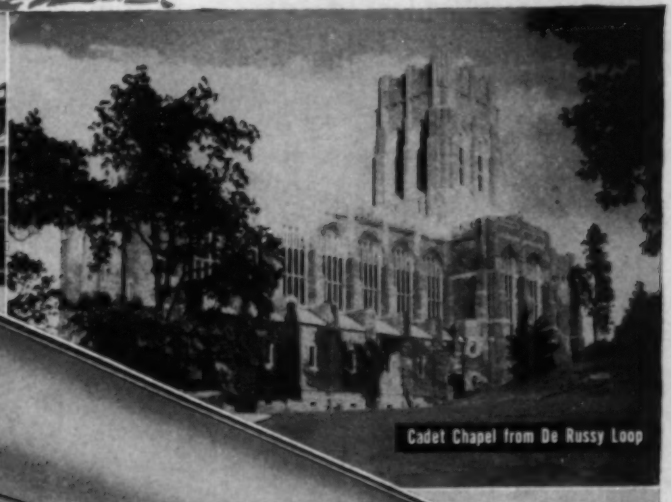
Ben Sackheim, Inc., 29 W. 57th St., New York 19, N. Y.

The American Standards Association, Grand Central Terminal Office Bldg., 70 E. 45th St., New York 17, N. Y.

Saluting the GUTH *CADET

* THE FLUORESCENT LIGHTING FIXTURE INSTALLED IN THE UNITED STATES MILITARY ACADEMY AT WEST POINT

Cadets marching to Guard Mount



Cadet Chapel from De Russy Loop

West Point from the Air

The GUTH CADET

Colors during Battalion Parade

West Point Cadets Study by the Light of GUTH "Cadets"

THE study-areas at West Point Military Academy are now lighted by the Guth CADET, the new semi-indirect type luminaire.

Forty-five Foot-Candles of uniform, glare-free, shadowless lighting is delivered on the study-desks. The illumination is evenly distributed throughout the area; there are no "Bright-spots"—all brightnesses are correlated. Reading visibility is excellent; writing with either pen or pencil is now effected without any direct or reflected glare. A 100% perfect *seeing-light* has been provided!

The new Guth CADET semi-indirect luminaire, is now Commercially available. Write for details.

THE EDWIN F. GUTH COMPANY
2615 Washington Ave. ST. LOUIS 3, MO.

LIKE THE WEST POINT CADET, THE GUTH CADET IS
Smart in Appearance ★ *Efficient in Action* ★ *Developed for Precision* ★ *Dependable in Service*

FOR BETTER BUILDING

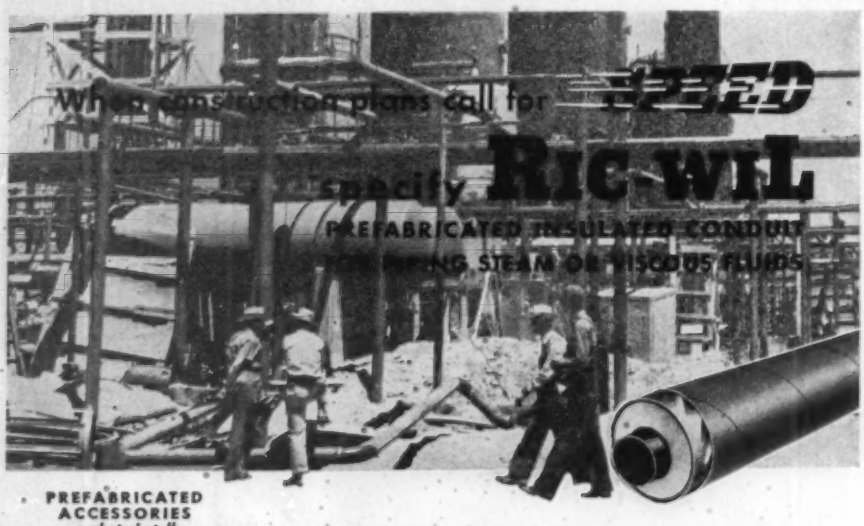
(Continued from page 22)

the Prefabricated Home Manufacturers' Institute, is being circulated to the trade for comment.

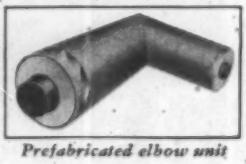
Laminated Lumber

The Bureau of Standards has announced that work is under way under the auspices of the Central Committee on Lumber Standards, appointed by the U. S. Department of Commerce, to establish basic standards for glued laminated lumber products, similar to the American Lumber Standards. The project was undertaken in response to a request from an informal conference of lumbermen, fabricators and glue manufacturers, presented by the National Lumber Manufacturers Association.

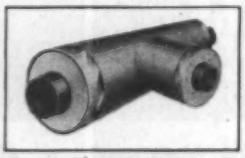
The standards, when established, will assure the consumer that the proper type of laminated construction is selected for the use intended. It is expected that inspection services will be available to assure conformance with the standards.



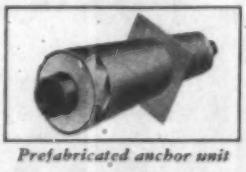
PREFABRICATED ACCESSORIES *ready to install*



Prefabricated elbow unit



Prefabricated T-branch unit



Prefabricated anchor unit

Prefabricated gland seal

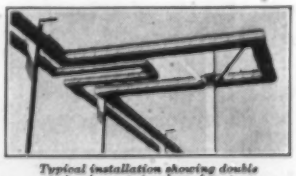
FACTORY PREFABRICATION SAVES TIME AND MONEY ON THE JOB

The Ric-wiL Unit Method eliminates 80% of the field work usually associated with the installation of insulated piping and makes possible phenomenal speed on the job. Prefabricated 21-foot sections are delivered to job site—complete with pipe, insulation, couplings and accessories—ready for hoisting onto trusses or lowering into narrow trenches. Often a number of units are welded and coupled on the ground before installation, minimizing overhead and trench work under difficult conditions. On one job, 1500 feet of Ric-wiL Conduit were installed and pipe welded, ready for couplers and insulation between units—*in only two working days* . . . Ric-wiL Insulated Pipe Units are available in single or multiple pipe systems, for piping steam, hot water, oil or viscous fluids where flow temperature must be maintained.

Write for the new Ric-wiL Catalog

PREFABRICATED EXPANSION LOOPS

Completely assembled expansion units are provided as required, fitted with couplers, ready for quick installation. Adaptable to underground, surface, and overhead systems.



Typical installation showing double overhead expansion loop for steam and return line.

RIC-WIL INSULATED PIPE CONDUIT SYSTEMS
THE RIC-WIL COMPANY · CLEVELAND, OHIO
AGENTS IN PRINCIPAL CITIES

CEMENT RESEARCH

The recently formed Oxychloride Cement Association, 1010 Vermont Ave., N.W., Washington 5, D. C., reports that their principal work to date has been to coordinate methods of test between the laboratories of their members and the National Bureau of Standards, and write specifications. They hope to have a specification ready to issue by January 1, 1945.

A non-profit organization, the Association was formed to help standardize performance tests and application specifications for the benefit of users. One of its primary purposes is to disseminate presently available knowledge of various types of Oxychloride Cement mixtures in diverse applications and to correlate data on new uses and methods of application.

VISUALIZED LAYOUT

Transparent plastic models are being used by Display Studios of Pittsburgh to visualize plant layout and location. One such model, of a synthetic rubber factory, was constructed to scale for the Blaw-Knox Company of Pittsburgh. Walls, floors and partitions were made of Plexiglas.

The plant in question was designed and built in eight weeks. Including a 70-ft. high building, it makes possible the mixing of carbon black, a synthetic soot, with liquid rubber, cutting the milling time for making synthetic rubber by one-third.

AIR-BORNE NOISES

The extent to which air-borne noises are transmitted through walls and floors of various constructions has been determined in a series of tests conducted under the sponsorship of the Insulation Board Institute. The results are given in an eight-page folder just published by the Institute under the title, "Sound Insulation Values of Floors and Walls."

Included in the report are the findings on eight types of wall panels and six types of floor construction. According to the foreword, the claim of insulating board manufacturers that structural insulating board reduces sound transmission when properly applied is substantiated by these tests.

Copies of the folder may be had by writing to the Institute, 111 W. Washington St., Chicago 2, Ill.

PLASTICS FOR DRAFTING

Complete Line

A complete line of all-plastic drafting instruments now being produced in quantity include a 5-in. pocket slide rule, a triangular relief facet scale for

(Continued on page 128)

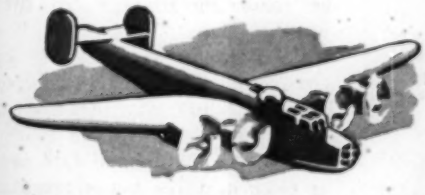
FREE... important new book!

Makes Better-Than-Ever Plywood for War Today... for Better Living Tomorrow

Out of a wartime test tube comes the new and greatly needed KIMPREG!* Not a plywood – not a conventional plastic laminate – KIMPREG is a remarkable surfacing material for bonding to the base plywood in conventional plywood hot presses. When applied to plywood, the finished product is more durable – has a higher flexural strength than ordinary plywood – offers resistance to vapor permeability, abrasion, decay. Application of KIMPREG assures moisture-resistance, easy washability. This new plastic surfacing material will make your product scuff-proof – it won't stain – the finish will wear better than paint.

In the post-war world KIMPREG will open new fields for the use of plywood. It may offer new opportunities for your product. It may well represent important savings of money and material to you. So be ready to take advantage of the tested KIMPREG plastic surfacing for plywoods when conversion to a peacetime economy comes. Write for FREE booklet today.

*KIMPREG (Trade-Mark) means Kimberly-Clark Plastic Surfacing Material



TODAY—The Army and Navy use KIMPREG for bomber floors and doors, packing cases, luggage, hutments, parachute folding tables.

TOMORROW—KIMPREG will be used in construction of prefabricated houses, refrigerator car linings, table tops, piano and radio cases, etc.

Among the users of KIMPREG are: Buffelen Lumber & Manufacturing Company; Olympic Plywood Company; Washington Veneer Company; and The Wheeler, Osgood Company; all of whom are currently producing a Douglas Fir Plywood surfaced with KIMPREG. This product is sold under the trade name of Inderon.

A PRODUCT OF
Kimberly Clark
RESEARCH

AR-1144

War Products Division
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Please send me FREE KIMPREG book.

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Line of Business .....

Address .....

City ..... *State* .....

 (Continued from page 126)

engineers, the same scale for architects, flat four-bevel scales, and two types of protractors.

Special equipment and special methods are used to maintain a dimensional tolerance of .0005 in. per in. between lines as delicate as .003 to .0035 in. in width of graduations or calibrations, on the various instruments, and a depth of .005 in.

Plastics used in the rules are Lucite, made by Dupont, and Plexiglas, made by Rohm & Haas; Polystyrene, made by Bakelite, Dow or Monsanto. The 5-in. types are of Lucite or Plexiglas and Polystyrene; the 10-in. slide rules are entirely of Lucite or Plexiglas. Pereles Bros., Inc., Milwaukee, Wis.

Slide Rule

To prevent loss of visibility through use, a new *5-in. Pocket Slide Rule* has graduations molded in as an integral part of the rule. A, B, CI, C, D, K, S, L and T scales are shown. Graduations and numerals of the CI scale are in red to facilitate reading. Replaceable glass indicator enclosed in a frame of stainless steel that holds it firmly in place and eliminates "wobble." The beveled edges of the rule are in graduated scales of both inches and centimeters.

The new rule comes complete with natural leather case and instruction booklet. Charles Bruning Co., 102 Reade St., New York.

PLYWOOD CALCULATOR

The recently developed *Keely Plyform Calculator* is designed to save time in speeding up the estimation of the amount and size of plywood, studs and wales needed for any given plywood concrete form. One setting of the slide rule device is said to give an accurate estimate of the material needed to construct the forms, and to save labor in looking up formulas and in figuring. Only information needed for the setting is: rate of pour, whether vibrated or unvibrated, and the height, length and thickness of the wall. National Plywood Distributors Assn., Inc., 111 W. Washington St., Chicago, Ill.

TIME SWITCH

A new development in time switches is the *Paragon 700-Series* 7 day calendar, dial time switch, for timing automatic heat, ventilating, lighting, pumping or flushing operations. The switches are equipped with 6-in. calendar dials which make one complete revolution every seven days. Dial trippers can be independently set for different daily ON and OFF schedules. Settings can be made in advance for the entire week.

Each day of week clearly separated from other days; graduated into hours and half hours; day and night distinctly separated. Operations from ON to OFF or from OFF to ON can be set as close as three hours apart and can be separately adjusted throughout each 24 hour day in the week. Paragon Electric Co., 39 W. Van Buren St., Chicago 5, Ill.

NON-SLIP FLOOR

A new non-slip plastic floor coating called *R-Mir-Dek* may be put down over old wood, concrete or steel floors. Available in colors. Put down at the close of plant operations at night, it can be walked on the following morning. Miracle Adhesives Corp., 261 Fabyan Pl., Newark 8, N. J.

MASONRY PAINT

Ready-mixed exterior paint for masonry, *Mason-Bond*, is said to simplify and improve the method of pro-

(Continued on page 130)

FUN FOR YOU AND YOUR FAMILY

—now everyone can build a dream house!

ARCHITECTOR MODEL BUILDING SETS

Gift of a Lifetime!

BUILD MODELS WITH MINIATURES OF
- *REAL BRICKS*
- *WINDOWS*
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- *CEMENT*

ALL PARTS INDESTRUCTIBLE—CAN BE USED AGAIN & AGAIN

Now your whole family can play architect. All they need is Architector . . . the new building set that's amusing, entertaining all America. Grand hobby for boys and girls, too. This Xmas, give Architector to all your loved ones.

Set Illustrated **$15.00**

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I am enclosing $..... for ..... Architector Set to be sent postpaid. Sorry, no C.O.D.'s.

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REPUBLIC—THE PREFERRED PIPE FOR

When the heat from a fire actuates the heads in a sprinkling system, water must flow freely—OR ELSE the sprinkling system fails the purpose for which it was installed.

That's one of the reasons why so many pipe users prefer Republic Pipe for sprinkling systems—because it is clean and free from clogging scale.

This top-quality pipe acquires its clean inside and outside surfaces from the improved continuous weld process by which it is made.

From this same process it also gains its strong, tight weld and its uniform ductility. Republic Pipe bends and coils freely and smoothly. It cuts and threads easily and cleanly—because there are no hard areas to cause difficulties.

When used without threaded fittings, Republic Pipe welds readily and strongly by modern methods.

See your Republic Pipe Jobber. He carries stocks of popular sizes—black and galvanized—in waste-saving uniform lengths. If you need extra long lengths, he can get them for you. Ask him for full information on sizes available, present delivery schedules and priority required.

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Berger Manufacturing Division • Culvert Division
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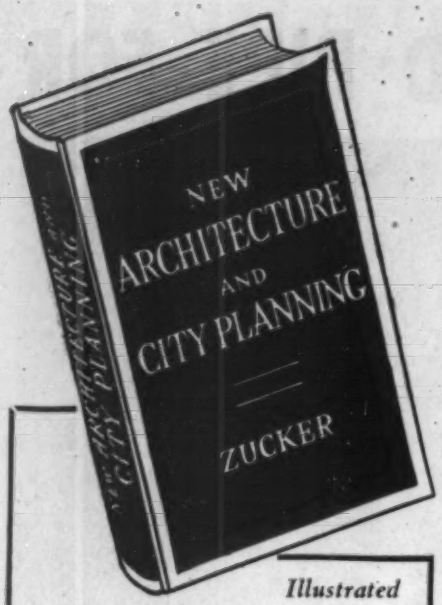
Republic STEEL PIPE

Pipe is only one of a wide line of Republic Steel Building Products. See Sweet's for details.



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FOR BETTER BUILDING

(Continued from page 128)

tecting masonry surfaces exposed to weather. It resists lime and alkali, goes over damp or dry masonry, and adheres to smooth or rough surfaces. When *Fungus-Ban* is added to the paint, a protective coating is had to combat attack of spores of fungi. Wilbur & Williams Co., Park Sq. Bldg., Boston, Mass.

DRAWING INSTRUMENTS

A recently developed line of *Truper* true perspective drawing instruments includes a wide variety of perspective graphs, a set of circles, and perspective scales showing diminishing units of measurement as they recede toward the vanishing point at the designated angles. In each case all lines are located mathematically. Chas. W. Downs & Son Co., 2280-2300 Fourteenth St., Detroit 16, Mich.

FLUORESCENTS

Industrial Units

A new series of fluorescent units for two and three 40-watt lamps has been developed for use in industrial plants, airplane hangars and other industrial interiors.

The units can be hung individually or in continuous lines for higher intensity by means of chain, conduit or cable. They can be used over work benches, machines, etc., or for general lighting. Only four-foot units are available, 12 9/16 in. wide. Outer surface of reflector and housing painted gray; inside white reflecting surface of Fluracite. Steel reflector and housing. Ballast and starters mounted on top of wiring channel. Units are wired for 110-120 volts. Curtis Lighting, Inc., 6135 W. 65th St., Chicago 36, Ill.

Utility Fixture

A new industrial and utility lighting fixture for use with two 40, three 40 and two 100-watt fluorescent lamps has been announced as the result of the WPB's recent release of heavy-gauge steel for lighting purposes.

The *Maze-Lite*, as the unit is called, is built of heavy-gauge steel throughout, and made entirely with dies. Its reflector is available with either porcelain enamel (1200°) surface, or with synthetic enamel (300°) surface. Reflector-ends are rounded to eliminate sharp corners for maximum safety conditions. Can be had with hot-cathode or cold-cathode auxiliaries. Immediately available. The Edwin F. Guth Co., 2615 Washington Ave., St. Louis 3, Mo.

BEFORE AND AFTER
INSTALLING STEWART JAIL AND PRISON EQUIPMENT

The remodeling of this prison, located in a southern state, is a good example of the possibilities of rehabilitation work. All cell work, locking devices, railings and gratings were furnished and installed by Stewart. And although the manufacturing facilities of this organization are engaged in war work, our engineering staff is available to work with architects and builders on plans for new construction or remodeling of old equipment for any size project from a village lockup to a federal penitentiary. The Stewart Iron Works Co., Inc., 1177 Stewart Block, Cincinnati 1, Ohio.

Stewart JAIL and PRISON EQUIPMENT

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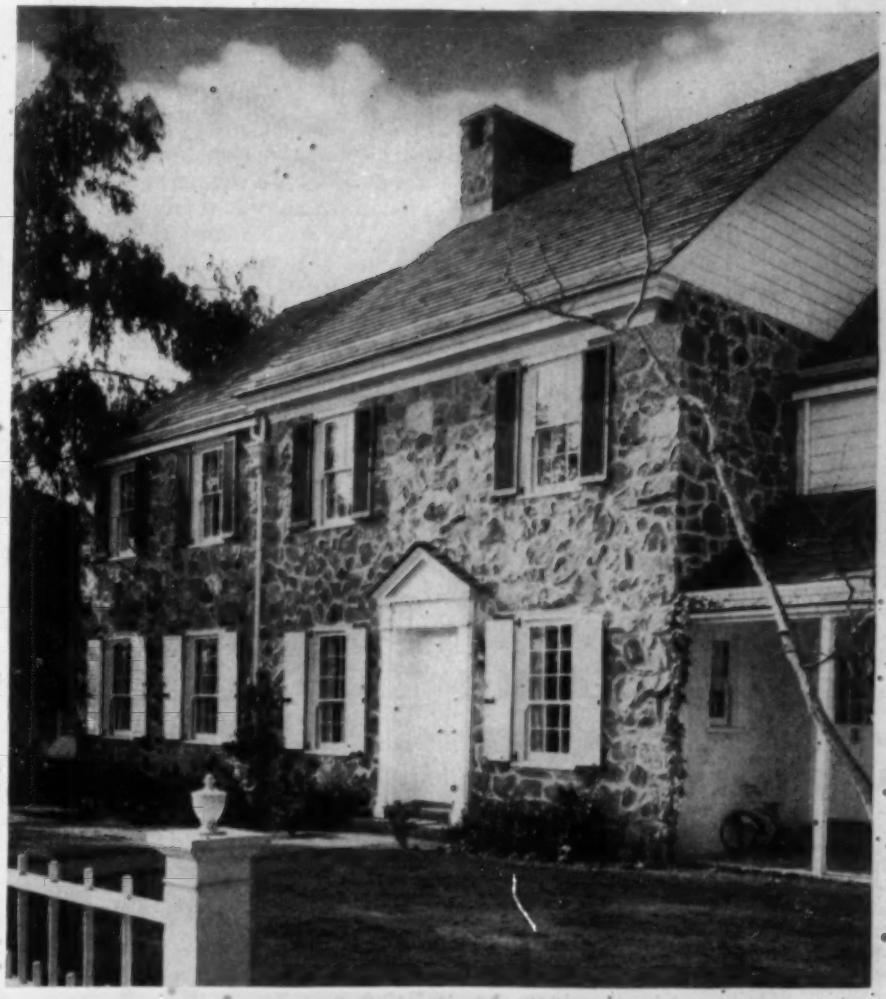
...expressed in stone and in living-comfort



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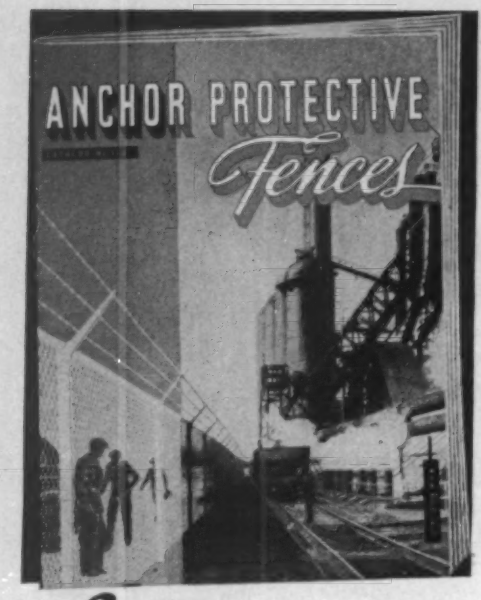

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REQUIRED READING

(Continued from page 116)

"To put the most baffling problem first," Dean Bennett continues, "what most of us are subconsciously looking for in the postwar dwelling is *a small, but spacious, house.*" How best to achieve that end is the theme of this article. Should the plan be the spacious and dignified Georgian? Or the country-club Norman? Or what?

This article was written for the layman, but, as the editors of the *Bulletin* point out, it is a clear statement of just what is desired and what is likely to materialize in the postwar house. Heating, lighting, insulation and temperature control, come in for their share of the discussion.

Dean Bennett closes on a conservative note—that "technical gain will be gradual and steady rather than sudden and miraculous." Like everyone else with his feet on the ground, he does not believe in the "miracle house."

COMFORT AIR CONDITIONING

Design and Control of Year 'Round Air Conditioning Systems. By William Goodman. Chicago 2, Ill. (6 N. Michigan Ave.), Heating, Piping & Air Conditioning, Sept., 1944, pp. 520-523. illus.

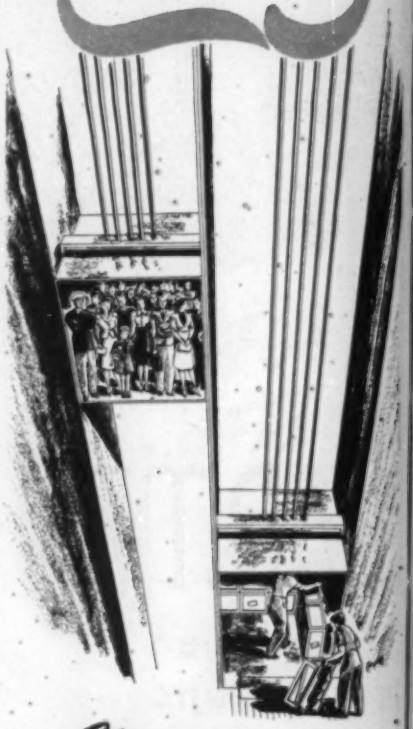
This is the seventh in a series of articles comparing primary air systems and straight reheating systems, refrigerating plants for primary air systems and winter-summer change-over. Here Mr. Goodman is concerned with the fundamentals; his article is factual, clear, and very much the sort of thing that architects now busy with postwar design will find useful.

Pointing out that the temperature control system required for a primary air system is much more complex than for a straight reheating system because of the necessity for automatic change-over, Mr. Goodman explains in detail, and illustrates with diagrams, the differences in operation between the two systems. He then goes on to discuss the various methods of automatic and manual change-over.

"The most satisfactory air conditioning system of all," he concludes, "is one in which no reversal of the control action is required. In a system which maintains the same action of the control equipment all through the year, there is no difficulty in maintaining satisfactory temperatures especially in the usually troublesome in-between seasons. One of the advantages of control by reheating is the fact that no reversal of the thermostat action is required and that smooth control is obtained, not only in winter and summer, but in the in-between seasons

(Continued on page 134)

GAUGE OF ANY BUILDING'S WORTH



Montgomery Elevators

THE ENTIRE OPERATION of any modern commercial or industrial building, more than one story high, depends on the efficiency of its vertical transportation system. In postwar construction and its attendant new elevator problems, you can depend on Montgomery for assistance in designing and engineering vertical transportation. Although their original cost is generally lower, for over 50 years Montgomery Elevators have been giving such dependable service *that practically no major repairs have ever been required.*

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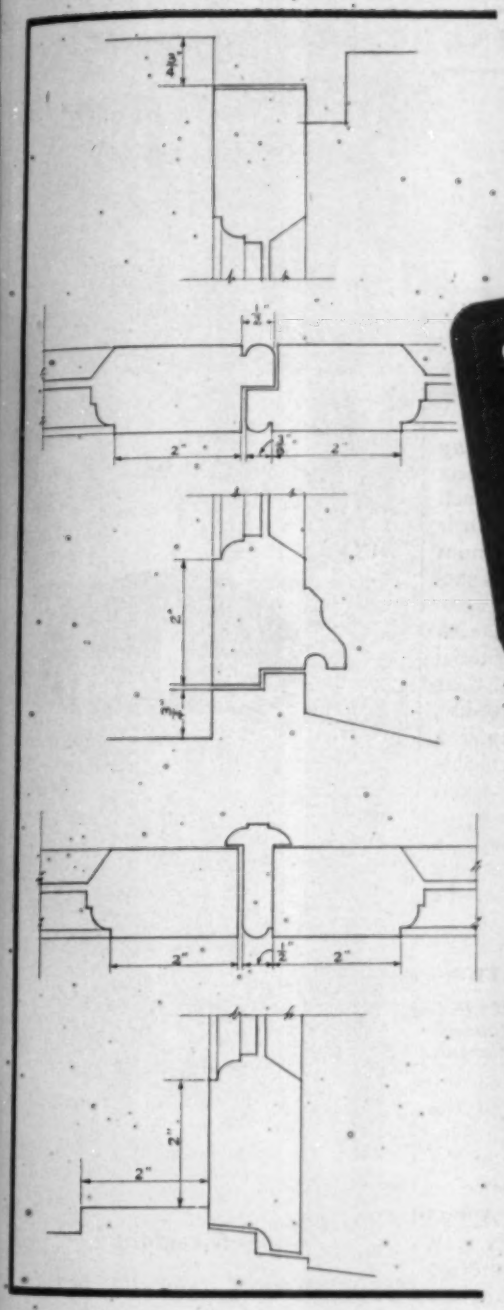

A GOOD RULE

Select your hardware first — then detail to suit it. American manufacturers have standardized to a great degree. By making your details to suit these hardware standards you will *save* your clients' *money*, *expedite delivery*, and *eliminate* many aggravating hardware *problems*.

DETAIL *the* CASEMENT WINDOW *to suit the Hardware*

THE many advantages of the popular wood casement window are often neutralized by improper detailing—in fact, more so than any other opening in the building. This is because the proper functioning of a casement window is so dependent upon the hardware.

Manufacturers have standardized hardware detail to conform to standard details in casement and frame. Why not take the easier and better way and detail your windows to suit the hardware that is readily available?

These types of windows require *hardware study* — for width of stiles — space between sash and screen — throw of hinges — style of meeting rails — and other major problems. A conference with your hardware consultant can save you much time, and may save your client much grief.

Let's co-operate. you consider your hardware requirements *early*, and we will gladly help you solve *special* hardware problems. Lockwood Builders' Hardware is featured in Sweet's Architectural Catalogs.

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